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Part I.—HISTORY, LITERATURE, &c.

No. I.—1886.

Some Copper Coins of Akbar found in the Kángrá district.—By E. E. Oliver, M. I. C. E., M. R. A. S., &c.

(With two Plates.)

While on tour last cold weather as I was just leaving the Kángrá Valley a *baniyá* from Chintpúrní, a village on the boundary line separating the Kángrá from the Hoshiyárpur district, brought up to my camp a large bag of the copper coins of Akbar, numbering several hundred. All had been found together and were in excellent preservation, the lettering and ornamentations being almost as sharp as if fresh from the mint. Although struck at widely distant places and considerably differing dates, the larger portion of them could hardly have been long in circulation. They might not improbably have formed a part of one of the bags of 1,000 *paisá* which Bernier says, in Aurangzeb's time at least, were kept ready for distribution, and have been sent up to the valley for the payment of troops during one of the Mughal expeditions under Jehángír or Sháh Jehán, and have lain hid away ever since.

A selection of 90 or 100 of the best resulted in the following list of mints and months, and from these again I give in a couple of plates some 30, which may be of interest in continuation of recent papers on similar coins by Mr. Rodgers in the pages of this Journal.

"ILÁHÍ" YEARS.

Nos.	Wt. in grs.	Month.	Mint.	Year.		
1	312	Farwardin	Aṭak Banáras	41	Ob.	ضرب فلوس اٹک بنارس
					Rev.	فروردین الهی ۴۱
	318	"	"	40		

Nos. on Pl.	Wt. in grs.	Month.	Mint.	Year.		
	319	Farwardin	Gobindpur	47	Obv.	گوبندپور نيم تنكه اكبر شاهي
14	319	,,	Bairátah	45	,,	,,
2	315	Ardibihist	Dehli	38	Obv.	ضرب فلوس دهلي
	318	,,	,,	35	,,	,,
	318	,,	Multán	4x	,,	,,
3	314	Khúrdád	Dehli	41	,,	,,
	316	,,	Gobindpur	4x	,,	گوبندپور . . . تنكه اكبر شاهي
4	320	Tír	Dehli	45	Obv. Rev.	دهلي نيم تنكه اكبر شاهي ماه تير الهي ۴۵
	315	,,	Fathipur	44		
	319	,,	Gobindpur	3		
5	318	Amardád	Sambhal	44	Obv.	ضرب سنبهل نيم تنكه اكبر شاهي
	314	,,	Lahore	4x		
6	322	Shahrewar	Gobindpur	4x	Obv.	,,
7	317	Mihr	Dehli	39	Obv. Rev.	ضرب فلوس دهلي ماه مهر الهي ۳۹
8	318	Abán	Gobindpur	45	Obv.	ضرب گوبند پور نيم تنكه اكبر شاهي
	316	,,	Delhi	38	Obv.	ضرب فلوس الهي دهلي
15		,,	Saháranpur	41	,,	,,
9	326	Azar	(? Sirsa Banáras)	45	Obv. Rev.	ضرب [سرسة بنارس] آذر الهي ۴۵
	321	average of three others.				
	316	,,	Lahore	37	Obv.	ضرب فلوس لاهور
10	316	Dí	Lahore	39	Obv.	,,
	315	,,	Dehli	4x	,,	,,
		,,	Gobindpur	4x		
11	318	Bahman	Aṭak Banáras	40	,,	,,
	316	,,	Multan	38	,,	,,
	317	,,	Lahore	38	,,	,,
	317	,,	Gobindpur	46	,,	ضرب گوبند پور نيم تنكه اكبر شاهي
12	318	Isfandarámuz	Dehli	45	,,	,,
	318	,,	Bariátah	45	,,	,,
	319	,,	Lahore	41	,,	,,
13	320	Zarb	Sirhind	41	,,	,,
	318	(average of 4)	Muhr-i-Iláhábás	31	,,	,,
	316	(average of 4)	Urdú-i-Zafarkarín	35 37 39	Obv. Rev.	ضرب فلوس اردوئی ظفر قرين الهي

Nos. on Pl.	Wt. in grs.	Mint.	Year.	
16	317	Falús Allaha Akbar. Dáru'l khiláfat	987	Obv. ٣٥ فلوس الله اکبر دارالخلافة Rev. نهصد و هشتاد و هفت ٩٨٧
17	318	Zarb falús Akbar (ábád?)	981	"
18	313	Falus Hazrat Dehli	988	"
19	321	Zarb falús Dáru's Salṭanat Fathīpur	986 987	Obv. ضرب فلوس دارالسلطنت فتح پور Rev نهصد وهشتاد و شش ٩٨٦
20	320	Falús Dáru'l khiláfat Jaunpur	986	"
21	315	Zarb falús Dáru'l khiláfat Agra	977 989	"
	320	Zarb falús Dáru'l khiláfat Lakhnau	987	"
	320	Zarb falús Dáru'l khiláfat Akbárábád	977	"
	319	Zarb falús Dáru's Salṭanat Lahore	987	"
22	318	Sikka falús zarb Bakhar	98	سکه فلوس ضرب بکهر نهصد وهشتاد
23	314	Sikka falús zarb Kanauj	987	"
	318	Sikka falús zarb Ajmir	982, 983, 987 991, 993	" "
24	318	Zarb falús Sherpur	982	"
25	319	Zarb falús Mirath	987, 989	ضرب فلوس میرته نهصد و هشتاد و هفت
	316	Zarb falús Ahmadábád	980	"
	323	Zarb falús Nárnol	962	"
	34 (average)	ditto	963, 964, 965, 966, 969, 977, 986	" "
	318	Zarb falús Urdú Zaferkarín Alif		"
26	318	Zarb falús Dáru'l khiláfat Deogir	986	ضرب فلوس دارالخلافة دیوگیر
27	320	Falús Dáru'l zarb Patnah	987	"
28	316	Zarb Sirhind	987	"
	318	Zarb Baldah Sirhind	987	Obv. ماه ابان ٤٥ الهي Rev. نهصد و هشتاد و هفت
29	322	Zarb falús Dáru'l Islam Doganw	98	Obv. دارالاسلام درگانو ضرب فلوس Rev. نهصد و هشتاد سنه في
	320½ (average)		980, 981, 986, 987, 992,	

Nos. on Pl.	Wt. in grs.	Month.	Mint.	Year.		
	319	Farwardin	Gobindpur	47	Obv.	گوبندپور نیم تنکه اکبرشاهي
14	319	,,	Bairátah	45	,,	,,
2	315	Ardibihist	Dehli	38	Obv.	ضرب فلوس دهلي
	318	,,	,,	35	,,	,,
	318	,,	Multán	4x	,,	,,
3	314	Khúrdád	Dehli	41	,,	,,
	316	,,	Gobindpur	4x	,,	گوبندپور . . . تنکه اکبر شاهي
4	320	Tír	Dehli	45	Obv. Rev.	دهلي نیم تنکه اکبر شاهي ماه تیر الهي ۴۵
	315	,,	Fathipur	44		
	319	,,	Gobindpur	3		
5	318	Amardád	Sambhal	44	Obv.	ضرب سنبهل نیم تنکه اکبر شاهي
	314	,,	Lahore	4x		
6	322	Shahrewar	Gobindpur	4x	Obv.	,,
7	317	Mihr	Dehli	39	Obv. Rev.	ضرب فلوس دهلي ماه مهر الهي ۳۹
8	318	Abán	Gobindpur	45	Obv.	ضرب گوبند پور نیم تنکه اکبر شاهي
	316	,,	Delhi	38	Obv.	ضرب فلوس الهي دهلي
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9	326	Azar	(? Sirsa Banáras)	45	Obv. Rev.	ضرب [سرسة بنارس] آذر الهي ۴۵
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		,,	Gobindpur	4x		
11	318	Bahman	Aṭak Banáras	40	,,	,,
	316	,,	Multan	38	,,	,,
	317	,,	Lahore	38	,,	,,
	317	,,	Gobindpur	46	,,	ضرب گوبند پور نیم تنکه اکبر شاهي
12	318	Isfandarámuz	Dehli	45	,,	,,
	318	,,	Bariátah	45	,,	,,
	319	,,	Lahore	41	,,	,,
13	320	Zarb	Sirhind	41	,,	,,
	318	(average of 4)	Muhr-i-Iláhábás	31	,,	,,
	316	(average of 4)	Urdú-i-Zafarkarín	35 37 39	Obv. Rev.	ضرب فلوس اردوی ظفر قرین الهي

Nos. on Pl.	Wt. in grs.	Mint.	Year.	
16	317	Falús Allaha Akbar. Dáru'l khiláfat	987	Obv. ۳٥ فلوس الله اکبر دارالخلافة Rev. نهصد و هشتاد و هفت ۹۸۷
17	318	Zarb falús Akbar (ábád ?)	981	,,
18	313	Falus Hazrat Dehli	988	,,
19	321	Zarb falús Dáru's Salṭanat Fathipur	986 987	Obv. ضرب فلوس دارالسلطنت فتح پور Rev نهصد و هشتاد و شش ۹۸٦
20	320	Falús Dáru'l khiláfat Jaunpur	986	,,
21	315	Zarb falús Dáru'l khiláfat Agra	977 989	,,
	320	Zarb falús Dáru'l khiláfat Lakhnau	987	,,
	320	Zarb falús Dáru'l khiláfat Akbárábád	977	,,
	319	Zarb falús Dáru's Salṭanat Lahore	987	,,
22	318	Sikka falús zarb Bakhar	98	سکه فلوس ضرب بکهر نهصد وهشتاد
23	314	Sikka falús zarb Kanauj	987	,,
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24	318	Zarb falús Sherpur	982	,,
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	316	Zarb falús Ahmadábád	980	,,
	323	Zarb falús Nárnol	962	,,
	34 (average)	ditto,	963, 964, 965, 966, 969, 977, 986	,, ,,
	318	Zarb falús Urdú Zaferkarín Alif		,,
26	318	Zarb falús Dáru'l khiláfat Deogir	986	ضرب فلوس دارالخلافة دیوگیر
27	320	Falús Dáru'l zarb Patnah	987	,,
28	316	Zarb Sirhind	987	,,
	318	Zarb Baldah Sirhind	987	Obv. ماه ابان ۲٥ الهي Rev. نهصد و هشتاد و هفت
29	322	Zarb falús Dáru'l Islam Doganw	98	Obv. دارالاسلام درگانو ضرب فلوس Rev. نهصد و هشتاد سنه في
	320½ (average)		980, 981, 986, 987, 992,	

The whole are struck as *falús* or *ním tankahs*, the average of 90 coins weighed by me being 318½ grains; several exceeded 320, in one case touching 326 grains.

Some of the mints, 28 in all, exclusive of two unread, are new to me, or are variants of known mints, and one or two I have not been able to identify. Possibly some of the more experienced contributors to this Journal may be more successful.

Akbarábád, Mirath, Nárnol, Fathipur, Sherpur, Gobindpur, Bairátah, Deogir, Doganw, and (? Sirsa Banáras) are not mentioned by Abul Fazl in his list of mints given in the Áín. Dáru'l Salṭanat Fathipur is, however, presumably what he refers to as "the seat of government." (Dáru'l Ḳhiláfat) Akbarábád is of course the Muhammadanised name of Agrah. Nárnol or Nárnaul was well-known for its copper mines and is very common, but I do not remember seeing Miraṭh mentioned as a mint of Akbar's before. Sherpur may not improbably be the town in the Bográ district, Bengal, referred to both in the Áín and the Akbarnáma as an important frontier post, and usually called "Sherpur Murchha" to distinguish it from another Sherpur in Maimansinh. Rája Mán Singh, Akbar's Hindú General in Bengal from 1589 to 1606 is said to have built a palace here, and have used it as a centre for military operations in Southern Bengal. In 1660 it finds a place in the Dutch Government maps under the disguise of "Ceerpoor Mirts." Of Gobinpurs there are two or three in Bengal, now insignificant villages. The name, however, survives in certain fixed divisions and in a mart in Gayá, that may formerly have been of greater importance.

Bairátah or Bairát, General Cunningham takes to be Virát, the capital of Matsya or Gujarát, where Hindú legends make the five Pándus spend their exile from Dilli. As Bairátnagar the old city was deserted for several centuries, but probably repeopled again in Akbar's time. It too was always celebrated for its copper mines and is mentioned in this connection by Abul Fazl in the Áín. Deogir, the Daulatábád of Muhammad bin Tughlaq, is variously called in the Áín by both names and as Dhárágaṛh, but whether during Akbar's time, or at any rate prior to 986, the date of this coin, it had any right to be termed Dáru'l Ḳhiláfat may perhaps be doubted.

Dáru'l Islám Dogánw I have so far altogether failed to identify. Comparing some dozen coins there seems no reason to doubt the reading to be as above, and the prefix "Dáru'l Islám" points to a place of some importance. The dates of the coins in my cabinet extend over 12 years, or from 980 to 992 A. H. The termination gánw or gáon was common, and we have Sátgánw, Pánchgánw, Chálisgánw, Chittagáon, Sunárgáon, Lohgánw, Deogánw and numerous others mentioned in the Áín and the

the Akbarnáma, but I have not been able to trace any mention of a Doganw.

No. 9. (? Sirsa Banáras) is quite open to other readings, and I only offer this tentatively. I have not found any mention of such a place. Aṭak Banáras and Kaṭak Banáras we know, but did Akbar ever christen any place Sirsa Banáras?

It will be noticed the *falús* struck at Nárnol commence from the year 962 A. H. or a year before Akbar's accession, but the only inscription is "*Zarb falús Nárnol*" and the coinage at this place may possibly have been continuous from the time of Sher Sháh to whose copper issue these pieces bear a marked likeness.

It is perhaps not a little curious in connection with this one find that it should have included specimens of the whole twelve Persian months from Farwardín to Isfandarmuz, in many cases of several mints.

The Antiquity, Authenticity and Genuineness of the Epic called THE PRITHÍ RÁJ RÁSÁ, *and commonly ascribed to Chand Bardáí.*[*]—*By* KAVI RÁJ SHYÁMAL DA'S, M. R. A. S., *Poet Laureate and Member of the State Council of Mewar.*

This famous Hindí epic—generally believed by scholars[†] to be the work of Chand Bardáí, the court bard of Prithí Ráj Chauhán, and describing the latter's history from his birth to his death—is *not genuine*, but was, in my humble opinion, fabricated several centuries after Chand's time, by a bard or bhát of Rájpútáná, to show the greatness of his own caste and of the Chauháns, who had come to the province from other parts of the country, and were not held in great esteem by the Princes of Rájpútáná.

The poem appears to have been composed by some literate bard of the family of *Kothária* or *Bedlá* Chauháns, to prove that they were related to the kings of Rájpútáná: the author chanted the praise of the Princes of Mewar in high terms, with a view to persuade them to connive at the facts and admit the narrative to be true, so that the Princes of the other Rájpútáná States might also be led to believe it, as really happened.

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[*] [The author wishes it to be stated that this paper was written by him in Hindí, and translated into English by Munshí Rám Prásâd. ED.]

[†] Mr. Beames supposes the 'Poem' to be the 'earliest work of Hindí Poetry'; in the Journal A. S. B. [1873, P. I., No. 1, page 167] we find "Chand is the earliest poet in the (Hindí) language." He also says that it was written about A. D. 1200. [In. Ant. Vol. I.] Had the poem been actually composed by Chand, the learned gentleman's suppositions would have been correct; but it was written comparatively later on, as I shall show in the following pages; and several Hindí poems written earlier than the 'Rásá' exist: *e. g.*, the 'Rámáyan' of Tulsi Dá.—the 'Ráe Mul Rása.'

The author ascribed the poem to Chand Bardáí, and did not mention his own name, as he was afraid he would not be believed.

I.

There is not the least doubt that the epic was composed in Rájpútáná (or by a poet of the Province) as it teems with terms and expressions commonly used in the poetry of this Province, and not found in that of Braj Bháshá or any other eastern dialect of India.

In the opening stanzas of the poem we have :—

(*a.*) सत्त फुल्यो चावद्दिसि Adi Parva, 2nd Chhappai Chhand.

(*b.*) छत्तौ भारत्तौ व्यास भारत्थ भाख्यौ ।
जिने उत्त पारत्थ सारत्थ साख्यौ ॥ A. P. 4th Bhujanga-prayâti.

In these lines the words "सत्त" "चावद्दिसि" "भारत्थ" "पारत्थ" and "सारत्थ" belong to the poetry of Rájputáná.

(*c.*) In the *âkhet chûk* canto occurs the couplet—

'यह घात सद्द गोरी सुवर ।
कहुं चूक कै सज्ज रन' ॥ 5th Chhappai.

Here चूककरना means 'to kill treacherously,' a sense in which it is never used in any other part of Hindustán.

In the Journal A. S. B. referred to in the preceding footnote, p. 175 Mr. Beames says: "Chand always puts an anuswâra to the last syllable of his words when writing Gâthâ. He seems to be under the impression that by doing so he is making them into Sanskrit."

But this was not the author's meaning, he intended to turn the style into Mágadhí or Bhála Bháshá, as poems composed three hundred years ago, were written generally in that tongue. The author had not himself studied the language, but had apparently heard of some Mágadhi poems, and to make his own composition appear ancient, he used *anuswáras ;* but unfortunately the words thus framed were neither Mágadhí, Hindí, nor Sanskrit. It is plain from his use of *anuswáras* that he was totally ignorant of Sanskrit.

Only a few examples are cited for shortness' sake ; thousands of expressions could be quoted from the poem that are found only in the poetry of Rájpútáná. Any intelligent Hindí poet on devoting attention to the poem would find it to be wholly in the style of the poets of Rájpútáná who compose two kinds of poetry :—

(1.) In the Márwárí dialect, called *Dingal.*

(2.) In the Braj Bháshá and other Hindí dialects, called *Pingal* in Rájpútáná. [The literal meaning of '*Pingal*' is a "Treatise on Prosody."]

All kinds of verses are in reality *kabits*, but the term is restricted here to two, *viz.*, *Chhappai*[*] and *Manoharan ;* in like manner the poetry of Braj Bháshá came to be called *Pingal* in the Rájpútáná phraseology.

Dingal is written always in one and the same style—but the poets of Rájpútáná mingle the idioms of *Dingal* and their native expressions in *Pingal :* hence the poetry of this Province bears no resemblance to that of Agra, Delhi and Benares &c. provinces.

It should be remembered that there is some difference between the poetical and colloquial dialects of Rájpútáná.

The poem is thus proved to have been composed in (or at least by a poet of) Rájpútáná.

II.

The Prithí Ráj Rásá was not written in Prithí Raj's time, or by Chand, but later.

I shall prove this first by quoting passages from the poem, and then refuting them.

The dates and eras given in the poem are for the most part incorrect : *e. g.*, the year of Prithí Ráj's birth is given as follows :—

(*a.*) दो॰ । एकादस सें पञ्च दह
विक्रम साक अनंद ।
तिहि रिपु पुर जय हरन को
भे प्रथिराज नरिंद ॥ I. 46.†

Translation.

In the auspicious year 1115 of Vikram's era was born Rájá Prithí Ráj to take his enemy's territory.

(*b.*) A little further on we find the following :

पद्धरी छंद । १ दर्वार बैठि सोमेस राय ।
लीने हजूर जोतिग बुलाय ॥
२ कहो जन्म कर्म बालक विनोद ।
सुभ लग्न मुहूरत सुनत मोद ॥
३ संवत्त इक दस पञ्च अग्ग ।
बैसाख त्रतीय पख क्रष्ण लग्ग ॥
४ गुरु सिद्ध जोग चित्रा नखत्त ।
गुरु नाम करन सिसु परम हित्त ॥

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[*] Lit. a verse having six feet.

† [The references given by the author being to MSS. in his own possession and not accessible to the public, have been corrected in accordance with the complete list of the cantos of the Prithiraj Rasa given by me in Proceedings A. S. B. for 1872, p. 62. Ed.]

५ ऊषा प्रकास इक घरिय राति ।
पल तीस अंस चय बाल जाति ॥
६ गुरु बुद्ध सुक्र परि दसैं थान ।
अष्टमे बार शनि फल विधान ॥
७ पञ्चमे थान परि सोम भोम ।
ग्यारमे राहु खल करन होम ॥
८ बारमैं सूर सो करन रंग ।
अनमी नमाइ तिन करै भंग ॥ I. 53.

This *Chhand* describes the horoscopic announcements at the birth of Prithí Ráj:

Translation.

1. Rájá Somesar Dev (the father of Prithí Ráj) sat in a darbar and called the astrologers before his presence.

2. He said to them "give an account of the birth, destiny, and pursuits of the infant:" there reigned joy as soon as (the assembly) heard the lucky moments of its birth.

3. The Samvat was 1115, the 3rd day of the dark fortnight of Baisákh; इकदश पञ्च = 1115; according to the Dehlí-dípak Nyáya —देहली दीपक न्याय—a poetical license, the term दश in the middle of इक and पञ्च, applies to both, making इकदश and दश पञ्च.

Dehlí-dípak, lit. the light on the threshold which illuminates the inside as well as the outside of a room.

4. It was Thursday, Siddhi Yoga,* and Chitrá Nakshatra;† the Guru or spiritual preceptor named the child with great cheerfulness.

5. One ghaṭí (24 minutes), 30 pals, and 3 amśas had elapsed of the Ushá Kál (the interval of four ghaṭís immediately preceding sunrise) when the infant was born.

6. Jupiter, Mercury and Venus were in the tenth mansion; and the consequences of Saturn being in the eighth mansion were given.

7. The Moon and Mars were in the fifth mansion; Ráhu was in the eleventh, which means the annihilation of the wicked (enemies).

8. The Sun was in the twelfth mansion, which meant the child would win great glory, and be able to trample down inveterate foes.

(*c.*) In the same Chhand, the astrologers have prophesied the age of Prithí Ráj to his father Somesara Dev in the following terms:—

"चालीस तीन तिन वर्ष साज ।
कलि पुहमि इन्द्र उद्दार काज ॥"

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* A division of a great circle measured on the Ecliptic. (J. A. S. B. Vol. 9, p. 365.)

† A star-asterism.

Translation.

In the *Kali Yug* he would be a protector of the earth for forty-three years—in other words he would enjoy the age of forty-three years.

(*d.*) Again, there is a chhappai chhand, called *Kabit* by the poets of Rájpútáná, describing the adoption of Prithí Ráj by his maternal grandfather Anang Pál Tuṇwar king of Delhi, who had no male issue :—

कवित्त १ एकादश संवतह—अट्ठ अग्गह ति तीस भनि ।
प्रथम सुरितु तहं हेम—सुद्ध मगसिर सुमास गनि ॥
२ सेत पष्प पंचमिय—सकल्ल वासर गुरु पूरन ।
सुद्दिमगसिर सम इंद—जोग सिद्दहि सिध चूरन ॥
३ पञ्ज अनङ्गपाल्ल अप्पिय पुहमि—पुत्तिय पुत्त पवित्त मन ॥
छंड्यो सुमोह सुख तन तरुनि—पत्ति बद्री सज्जो सरन ॥ XVIII. 31.

Translation.

(1.) It was Samvat 1138, and commencement of the season of *Hemant* (winter)—and the bright fortnight of the propitious month of *Magsir.*

(2.) It was the 5th day of the lunar half—Thursday complete in all its parts—the moon of the ominous *Magsir* Nakshatra complete in all its phases—*Sidhi Jog,* which is a wholesome dose of aromatic powder.

(3.) King Anang Pál made over his kingdom to his daughter's son with a cheerful heart; he renounced all sorts of enjoyments, *viz.,* comforts of the body and gratifications resulting from females and their company—and went on a pilgrimage to the shrine of *Badrí Náth.*

(*e.*) Again in the Mádho Bháṭ Kathá.

१ ग्यारह से अठतीस भनि—भो दिल्ली प्रथीराज ।
सुन्यो साह सुरतान वर—वज्जे वज्ज सुबाज ॥
२ ग्यारह से अठतीसा मानं—भो दिल्ली नृप रा चौहानं ।
विक्रम बिन सक बंधी सूरं—तपै राज प्रथिराज करूरं ॥ XIX. 65.

Translation.

1. *Dohá*—Prithí Ráj became king of Delhi in S. 1138; hearing this Sultán (Shahábuddín Ghorí) ordered martial music to be struck.

2. *Aril*—(Prithí Ráj) Chauhán became king of Delhi in S. 1138. This hero is worthy of giving currency to an era in his own name, although he is not Vikram. The stern rule of Prithí Ráj is current.

(*f.*) Again, the date of the battle gained by Kaimás, who is still famed as a wise Rájpút among the servants of Prithí Ráj, over Shahábuddín Ghorí, is thus given :—

(१) संवतहर चालीस—बदि चैत एकम दीस।
रविवार पुष्य प्रमान—साहाबदिय मेलान ॥ XLIV. 3.
कवित्त (२) ग्यारह सै चालीस—चेत बदि ससिय दूजो।
चढ्यौ साह साहाब—आनि पंजाबह पूज्यौ ॥
(३) लक्ख तीन असवार—तीन सहस मद मत्तह।
चल्यौ साह दर कूच—फटिय जुग्गिनिपुर पत्तह ॥
(४) सामन्त सूर विकसेउ उर—कायर कंपे कलह सुनि।
कैमास मंत्रि मंत्रह दियो—ढिग बैठे चामंड फुनि ॥ *ib.* 14.

Translation.

(1.) In S. 1140 (हर = 11 in Astrology)—on the 1st of Chait Badi—Sunday, when it was Paushya Nakshatra, Shahábuddín Ghorí encamped his army.

(2.) In S. 1140, on the date of Chait Badi, when the moon of the 2nd day had risen [it seems that प्रतिपदा and द्वितीया fell on the same day, therefore ससिय दूजो is mentioned], Shahábuddín invaded (Hindústán) and reached the Panjáb.

(3.) He had with him three laks of cavalry, and three thousand mad elephants : he travelled by marches, and proceeded with a howl towards Juggini or Delhi.

(4.) The brave warriors rejoiced in heart, but the cowards trembled on hearing of battle : Minister Kemás who gave him (Prithí Ráj) counsel, and a great warrior Chámaṇḍ sat close by him.

(*g.*) Again,

कवित्त (१) ग्यारह सै चालीस—सोम ग्यारस बदि चैतह।
भये साह चहुआन—लरन ठाढे बनि खेतह ॥
(२) पंच फौज सुरतान—पंच चहुआन बनाइय।
दानव देव समान—ज्वान लरन रिन धाइय ॥
(३) कहि चंद दंद दुनिया सुनो—बीर कहर चहर जहर।
जोधान जोध जंगह जुरत—उभय मध्य बित्यो पहर ॥ XLIV. 38.

Translation.

(1.) In S. 1140, on Monday the 11th of the dark half of *Chait*, the Chauhán (Prithí Ráj) stood in arms ready for battle.

(2.) The Sultán divided his army into five detachments, the

Chauhán also made five sections of his own forces, the young soldiers hastened to the battle-field like demons and gods.—

(3.) Chand saith O people of the world hear!—a kind of poison in the form of anger shone forth from the forehead* of warriors. The foremost warriors joined in battle, and one watch passed between them, *i. e.*, the battle between the parties lasted for one watch (nearly = 3 hours).

(*h.*) Again,

The canto describing the six seasons has.

दो॰ ग्यारह से एक्यावने – चैत तीज रविवार ।
कनवज देखन कारणे—चल्यौ सुसंभरी वार ॥ LIX. 84.

In S. 1151, on Sunday the 3rd of *Chait* (Badi ?) the Lord of Sambharí started to see Kanauj.

(*i.*) Again,

The canto narrating the last battle between Prithí Ráj and Shaháb-uddín has

दो॰ (१) शाक सुविक्रम सत्तशिव—†अट्ठ अग्र पंचास ।
शनिश्चर संक्रान्ति क्रक—श्रावन अद्धा मास ॥
(२) श्रावन मावस सुभ दिवस—उभय घटी उदियत्त ।
प्रथम रोस दुइ दीन दल—मिलन सुभर रन रत्त ॥ LXIV. 63.

Translation.

(1.) In S. 1158, on Saturday the Kark Sankránti, half the month of Shráwan having passed, (the battle took place).

(2). On the (Amávásya) fifteenth day of the dark half of Shráwan, an auspicious day—the sun having risen for two ghaṭis—was the first fury of the forces of the two Religionists (Muhammadans and Hindús) the meeting of the heroes intent on battle.

(*j.*) Again, we have on p. 1, leaf 380:

कवित्त (१) एकादश से सत्त—अट्ठ पञ्चास अधिकतर ।
सावन सुकल्ल सुपष्य—वुड एका तिथि वासर ॥
(२) बज्रयोग रोहिनी—करन बालव धिक तैतल्ल ।
प्रहर सेष रस घडिय—आदि तिथि एक पञ्चपल्ल ॥

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* घघर

† Some MSS. read पच here— but it does not matter whether we read पञ्च or अट्ठ—both are incorrect. [The readings in Tod's MS. differ much from those given above.—Ed.]

(३) बित्थुरिय बत्त जुद्दह सरल—जोगिनिपुर वासर विषम ।
संपत्तिथान सुरसतिय जुरि—रह सुरवौ कौनेा विरम ॥

Translation.

(1.) On Wednesday the first of the bright half of Shráwan in S. 1158.

(2.) (When it was the) Vajra Jog Rohiní Nakshatra Karn Bálaw, and Taitil in addition: six ghatís remained of the last watch,—and one ghaṭí and 5 pals had passed of the first day (pratipadá).

(3.) The news of the battle spread very easily and the day was very unfortunate for Delhi. The battle took place in such a manner that it appeared as if the goddess of wealth (*i. e.*, Lakshmí) fought with Saraswatí (the goddess of talents). [The rivalry between them is well known in the Puráns—if one of them favours a person, the other will not care for him—*i. e.*, a learned man is seldom seen to possess riches, and a rich man is seldom a man of letters.] The Sun also stayed to witness the action.

I have done with quotations—all of which have been ascertained by comparing the several MSS. of the poem in our library which are the same as that of Bedla.

Only one Samvat would have sufficed, but I thought it advisable to adduce several passages of Samvats, so that no one might argue that it might be a mistake of the scribe, and I hope the readers will thus be satisfied that no such error was committed.

III.

Now, to discuss the Samvats found in the foregoing quotations.

(*a.*) We must note the year when Prithí Ráj fought with Shahábuddín Ghorí, and the time when he ruled over Delhi.

The 'poem' gives us *S.* 1158 as the year of the battle.

But there is only one correct answer, *viz.*, that Prithí Ráj fought with Shahábuddín in the Pánjáb in S. 1249 = A. D. 1193, and ruled over Delhi before that time.

The reasons given below will testify to the truth of the statement.

The author of the 'Ṭabaqát Náçiri' (written in A. H. 602 = A. D. 1205 = S. 1262) writing about Shahábuddín says :—

" Shahábuddín Ghorí took Multán in A. H. 571 (= A. D. 1175 = S. 1232); and came towards Naharwárá in A. H. 574 (= A. D. 1178 = S. 1235) *viá* Urchá and Multán; he encountered the forces of the Rájá of Naharwárá, Bhím Dev or Basu Dev by name; the Sultán's army retreated and he returned without success. He took Lahore from the descendants of Sultán Mahmúd in A. H. 577 (= A. D. 1181 = S. 1238).

"In A. H. 578 (= A. D. 1182 = S. 1239) the Sultán came towards Deval and seized the maritime districts—he obtained much booty.

"In A. H. 580 (= A. D. 1184 = S. 1241) he again went to Lahore and plundered the whole territory; imprisoned all the descendants of Mahmúd and built the fort of Siálkoṭ; created Ali Karmákh (who was the Commander-in-chief of his forces) Hákim (Governor) of Lahore, and Sirájuddín Minháj (the author's father) was appointed Qázi of the troops stationed in India.

"In A. H. 587 (= A. D. 1191 = S. 1248) he took the fort of Sirhindá and entrusted it to Qázi Ziáuddín who was a cousin of the author's maternal grandfather. The Qázi garrisoned the fort with 1200 men to guard it till the Sultán's arrival. But Ráe Kolá Pithaurá had approached and the Sultán arrived as well; all the Rájas of Hindústán were on Pithaurá's side. The Sultán attacked Rája Govind Ráe of Delhi who was seated on an elephant, and knocked down two of his teeth with a lance. The Rájá threw a stone that severely wounded the Sultán's arm who was supported, while falling down from his horse, by a Khiljí soldier, and all the Sultán's men took to flight.

"Ráe Pithaurá beseiged Qázi Tolak in the Fort of Sirhindá, the battle was continued for thirteen months.

"The Sultán returned to Hindústán to take vengeance. The author heard from Muiz-uddín, a trustworthy person, that the Muhammadan army on the occasion consisted of one hundred and twenty thousand cavalry.

"Before engaging in battle, the Sultán divided his army into four separate detachments, and ordered his men to shoot arrows from all directions, and to give way when the elephants and soldiers of the enemy (Hindús) made an attack.

"The Muhammadans defeated the Hindús by acting up to his will and order; God granted victory to the Sultán and the heathens fled.

"Pithaurá descended from his elephant and gallopped off the field on horseback instantly; but he was captured in the land adjoining the Saraswatí, and sent to hell (killed).

"Govind Ráe of Delhi was killed, whose corpse was identified by the Sultán who had himself broken two of his teeth in a former battle.

"Delhi, Ajmere, Hánsi and Saraswatí were annexed to the Empire. This victory was gained in A. H. 588 (= A. D. 1192 = S. 1249); the

Sultán appointed Qutb-ud-dín Aibak in charge of the Fort of Kahrám, who took Miraṭh and Delhi, and also the Fort of Kol in A. H. 589 (= A. D. 1193 = S. 1250).

"The Sultán proceeded to Kanauj and Benáres from Ghazní in A. H. 590 (= A. D. 1194 = S. 1250-1251), and repulsed Rájá Jaichand near Chandáwal; more than three hundred elephants formed part of the booty.

"Qutb-uddín conquered Naharwárá, Kálewá, Badáon and many other districts.

"God willing, an account of these battles will be written in the Fath Qutbí (a book that seems from the title to give a history of Sultán Qutb-uddín Aibak)."

Now, the year 587 A. H. corresponds to A. D. 1191 = S. 1248.
„ 588 „ „ A. D. 1192 = S. 1249.

This shows the battle between Shahábuddín and Prithí Ráj Chauhán, and the latter's death, to have occurred in S. 1248-49; that is about 90 years after the date mentioned in the 'Prithí Ráj Rásá.' (S. 1158,)

Although the author of the 'Ṭabaqát Náçirí' was a foreigner, he could not have committed mistakes in the dates, if he did in names.

The 2nd Vol. of the 'Abul Fidá' [written in A. H. 700 = A. D. 1300 = S. 1356-57, originally in Arabic, and afterwards translated into Persian and Urdú] narrating Shahábuddín's advent into Hindústán, states briefly the events that happened in the years A. H. (586, 587, 589) and does not mention anything about Prithí Ráj's battle; but the existence of Shahábuddín Ghorí is proved to a certainty from the narrative, and all the later histories available uniformly mention S. 1249 (= A. D. 1192-93) for the battle between them.

The time of Rájá Jaichand and Shahábuddín having been ascertained and settled, there remains no doubt as to that of Prithí Ráj, seeing he was their contemporary.

Having done with the testimony borne by books, I now proceed to refer to stone Inscriptions found in Mewár, and some copper-plate grants (given in the Journals of the Society) that all go the same way.

*Inscription** *I.*

This Inscription exists in the village of Bijholí in Mewár, about 100 miles from the capital, on a rock under a Mahwá (*Bassia latifolia*) tree, close to the wall, to the north of the tank at the shrine of Párśwanáth. It records the grant of the village of Rewná by Somesvara Dev, the father of Prithí Ráj; and was executed by a Mahájan in S. 1226 = A. D. 1169. This shows that Prithí Ráj could not have lived or died in S. 1158, = A. D. 1101 as mentioned in the 'Rásá.' The Inscription concludes the genealogy of the Chauháns at Someswar Dev; this shows that Prithí Ráj (his son) had not ascended the throne when the Inscription was placed in Phálgun Badi S. 1226.

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* The Sanskrit texts and translations of the Inscriptions referred to in this paper will be found in the Appendix.

Inscription II.

Found on a pillar over the northern gateway of a palace in Menál gaṛh in Mewár; recording the erection of a monastery by Bháv Brahma, while Prithí Ráj Chauhán was the reigning monarch, Dated (Málwi) Vikram's Samvat 1226 (= A. D. 1169).

Comparing this Inscription with the preceding it is concluded that Prithí Ráj must have ascended the throne between Phalgun Badi and Chait Badi S. 1226.

However, if it was customary to reckon the commencement of the Samvat from any other month than Chait (as is still usual in some provinces) a greater interval may have elapsed between Phálgun Badi and Prithí Ráj's succession to his father's throne.

It is the general rule that Histories mention the events of the time, and may contain some exaggerations or false statements even—but for the most part the true facts are recorded—there is no error in dates or years; if there is, it is in books (like the Prithí Ráj Rásá) forged in the names of former authors as is usual with the founders of new religious systems, who compose new books, and name them after older authors to give them the authority of the Purāns.

Had Chand Bardái, the court-bard of Rájá Prithí Ráj Chauhán composed the poem, so grave a mistake of 90 years* could not have been made: and the poet could not have expected to gain anything by writing an incorrect date intentionally.

There are some copper-plate patents of Rájá Jai Chand of Kanauj, bearing dates S. 1233—1243 (= A. D. 1177— 1187), mentioned in the Journal of the Society for 1873, p. 317.

He was overthrown by the Muhammadans in A. D. 1193 (= S. 1249).

Prithí Ráj had married Sanjogitá the daughter of Jai Chand, who was defeated by Shahábuddín Ghorí in Kanauj, after the latter had conquered Delhi, as mentioned in the "Ṭabaqát Náçirí."

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* 1249 — 1158 = 91.

Colonel Tod has given S. 1249 for the battle between Shahábuddín and Prithí Ráj; but he does not adduce any arguments against S. 1158 given in the Prithí Ráj Rásá.

Again, he describes the existence of Ráná Ráhup, (son of Ráwal Samar Singh's* grandson) in the 13th century of Vikram's era, who lived really in the fourth quarter of the 14th century.

The Colonel is not to blame, because the '*Prithí Ráj Rásá*' has caused mistakes of dates in the histories and annals of Rájpútáná; and it was difficult, rather impossible for him, to write otherwise, when materials for History were available with great difficulty. If he is to blame at all, it is simply that he did not attend to the sequence of facts in his book.†

His narrative misled many authors, as for instance, Forbes in his 'Rás Mála;' Prinsep in Vol. II. of his 'Antiquities;' and Dr. Hunter in Vol. IX. of his 'Imperial Gazetteer' p. 166 [London edition, 1881], where we read "In A. D. 1201, Ráhup was in possession of Chittore," *i. e.*, in S. 1257—58; but we find no trace of Ráwul Samar Singh even till after S. 1324 (= 1267 A. D.), as the next Inscription in this paper will show.

IV.

Next, something must be said about the mistakes occasioned by the 'Prithí Ráj Rásá' in History.

The Muhammadans had a regular system of writing History, the Hindús had no such system; if there was anything of the kind, it was simply the genealogies, and very little, if any, historical accounts written in the books of the bards, or exaggerated poems of the times.

It is worth keeping in mind that the genealogical tables given in such books are found to be somewhat correct after the Samvat year 1600; those between S. 1400 and S. 1600 are wrong in several instances; but those previous to S. 1400 (= A. D. 1343) found in them are all wrong and guesswork.

When the 'Prithí Ráj Rásá' was forged and made known to the public as a poem by Chand, the bards and poets adopted the 12th century of Vikram's era for Prithí Ráj's death, in all their books bearing on the history of Rájpútáná.

As for example—

(1) The marriage of Ráwal Samarsí Jí of Mewár with Prithá, the sister of Prithí Ráj, narrated in the 'Rásá,' led them to adopt the S. 1106 as that of Ráwal Samarsí's ascending the throne of Mewár,

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* Called also Samarsí.

† Tod's 'Ŕájasthán.'

and S. 1158, the 3rd of the waxing moon of Shráwan for his death with 13,000 cavalry, simultaneous with Prithí Ráj's death in the battle against Shahábuddín Ghorí.

To confirm this Samvat 1158 adopted for Ráwal Samar Singh's death, they inserted by guesswork Samvats, in their books, of all the kings who ruled between Ráwal Samarsí and Mokul :—

1. Ráwal Samar Singh.
2. ,, Ratna Singh.
3. ,, Karna Singh.
4. Ráná Ráhup.
5. ,, Narpati.
6. ,, Dinkaran.
7. ,, Yashakaran.
8. ,, Nág Pál.
9. ,, Púrna Mal.
10. ,, Prithví Pál.
11. Ráná Bhuvan Singh.
12. ,, Bhím Singh.
13. ,, Jai Singh.
14. ,, Lakshman Singh.
15. ,, Ari Singh.
16. ,, Ajai Singh.
17. ,, Hamír Singh.
18. ,, Kshetra Singh.
19. ,, Laksh Singh.
20. ,, Mokul Jí.

The people of the Rájpútáná States believed in the Samvats given for these kings by the bards, and inserted in their books.

It is impossible that Ráwal Samar Singh could have married the sister of Prithí Ráj who lived about a century before him.

A masonry bridge constructed over the *Gambhirí* that flows past the celebrated Fort of Chitor, is attributed to Mahá Ráná Lakshman Singh's son Ari Singh; though I have not found it stated in any Persian history, yet some Muhammadans attribute the architecture to Khizr Khán, the son of Aláuddín Khiljí; whosoever might have been the builder, this much is certain that it was built towards the close of the 14th century of Vikram's Samvat, land the style is strongly in favour of its being a Muhammadan structure.

Inscription III.

There are nine arches in the bridge; in the eighth arch (taken from the east to the west), there is a slab bearing an inscription dated S. 1324 (= A. D. 1267), when Ráwal Tej Singh, father of Ráwal Samar Singh was reigning over Mewár. It appears to have been originally placed in some temple, and afterwards put in its present position when the bridge was built, *i. e.*, some materials for it were taken from the débris of the temple.

The characters are so deeply chiselled in that they have suffered very little from the constant action of water against the tablet (during the floods) for several centuries.

Two lines of the Inscription are extant, and they are given in Appendix III.

Inscription IV.

In the ninth arch of the same bridge we find an Inscription S. 13—2, the 13th of the bright half of Jeshṭha, recording that Ráwal Samar Singh granted a piece of land, on the bank of the river below the Lákhotá Bári (gate) on the northern border of the Fort of Chitor, for the good of his mother Jaitalla Deví (जयतल्ल देवी).

It is a pity that this Inscription is much broken, and thus cannot furnish any important information. Of the four figures of the year, the third is broken. However, so much is certain that it was executed in Samar Singh's reign: seeing the century to be 13 and the unit's place occupied by 2, I think the decimal place must have been taken up by 3, thus making up 1332; because the style of this Inscription closely resembles that of Inscription III, (dated 1324) and probably one and the same person was the author of both.

Inscription V.

Found embedded in the inner yard of a palace at Chitorgaṛh, dated S. 1335, Thursday, the 5th of Baiśákh Sudi—of Ráwal Samar Singh's time. It records the grant of land by him to a temple of S'yám Páraśwanáth, built by his mother Jaitalla Deví, Queen of Ráwal Tej Singh.

Inscription VI.

The Inscription exists in a monastery adjoining the temple of Achaleśvara, near Achalgaṛh on Mount Abú. Its date is S. 1342 (= A. D. 1285)—and it records the erection of a golden pillar for, and the reparation of, the monastery by Ráwal Samar Singh.

Inscription VII.

This Inscription is dated S. 1344 (= A. D. 1287)—Baiśákh Sudi 3rd recording a land-grant to a temple of Vaidya Náth Mahádev, when Ráwal Samar Singh was the reigning sovereign at Chitor. The temple was originally built in the tank dug by Chitrang Morí.

There are altogether eight lines—the character is Devákshara—it is on a pillar called *Surah* (सुरह), bearing the figure of a cow in relief, and one of the Mahádeva lingam.

I found this valuable writing on a white stone (not exactly marble) pillar, at the third gate from the Súraj Pol (Sun-gate), and had it removed to Oodeypore, the present capital—and it lies here in the palace.

Text.

[1] संवत् १३४४ वशाख शुदि ३
[2] अद्य श्री चित्रकूटे समस्त महा-
[3] -रावल कुल श्री समर सिंह देव कल्या
[4] [ण?] विजय राज्ये त्येवं काले चित्रांग
[5] तड़ाग मध्ये श्री वैद्य नाथ छते सकं
[6] रा...तार राम्भटेन चौकड़ी दत्त द्रा...
[7] ग्राम १ कायस्थ कुले थपंत सांग
[8] सुत वीजडेन कारापितं ॥

These inscriptions prove that Ráwal Samar Singh's father Tej Singh was the reigning sovereign of Chiṭor and Mewár in S. 1324; and that Ráwal Samar Singh reigned from S. 1332—S. 1344 (= A. D. 1275—1287).

Thus we see, the reign of Samar Singh could never have been before S. 1324, though there is nothing improbable as to his having reigned a few years after S. 1344.

Therefore, the S. 1158 (= A. D. 1101) written in the '*Prithí Ráj Rásá*' for the death of Ráwal Samar Singh with Prithí Ráj, cannot be correct any how.

Moreover Ráwal Samar Singh cannot be proved to have been in existence even in S. 1249 (= A. D. 1192-93). the actual year of the battle between Prithí Ráj and Shahábuddín Ghorí.

Hence, it follows, if Prithí Ráj's sister was married *at all* to any ruler of Chitor, she must have been wedded to another prince; because Prithí Ráj was killed in S. 1249, and Samar Singh's inscriptions are dated S. 1332—1344; that is, his reign falls 83* years after the death of Prithí Ráj: hence the assertion that, the latter's sister was married to this Samar Singh, is absurd.

It may be argued that there may have been another Rájá, bearing the name Samar Singh at Chitor: but the argument falls to the ground by the following correct and infallible genealogy, extending from Bápá Ráwal to Samar Singh, and copied from a stone Inscription :—

1. Bápá Ráwal—बापारावल
2. Guhil—गुहिल
3. Bhoj—भोज
4. Shil—शील
5. Kalbhoj—कालभोज
6. Bhartri Bhaṭ—भर्तृ भट
7. Agh Singh—अघ सिंह
8. Samháyak—समहायक
9. Khamán—खमाण
10. A'llaṭ—अल्लट
11. Naraváhan—नरवाहन
12. Shakti Kumár—शक्तिकुमार

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* 1332 — 1249 = 83.

13. S'uchi Varma—शुचिवर्म्म
14. Naravarma—नर वर्म्म
15. Kírti Varma—कीर्त्ति वर्म्म
16. Bairaḍ—वैरड
17. Bairí Singh—वैरी सिंह
18. Bijai Singh—विजय सिंह
19. Ari Singh—अरि सिंह
20. Choṇḍ Singh—चोंड सिंह
21. Vikram Singh—विक्रम सिंह
22. Kshem Singh—क्षेम सिंह
23. Sámant Singh—सामन्त सिंह
24. Kumár Singh—कुमार सिंह
25. Mathan Singh—मथन सिंह
26. Padma Singh—पद्म सिंह
27. Jaitra Singh—जैत्र सिंह
28. Tej Singh—तेज सिंह
29. Samar Singh—समर सिंह
30. Ratna Singh—रत्न सिंह

In this list there is only one Samar Singh (No. 29) who ruled at Chiṭor—and the 'Rásá' also mentions Samar Singh, as the son of Ráwal Tej Singh, and that Ratna Singh (No. 30) was his elder son. (Kumbh Karan was the younger.) These facts identify the genealogical No. 29 to be the person meant by the author of the "Rásá," who has by mistake placed Samar Singh's name in the poem in connection with the 12th century of Vikram's era.

Aláuddín Khiljí of Delhi took the Fort of Chitor after severe bloodshed in S. 1359 (= A. D. 1302-3) when Ratna Singh, the son of Samar Singh, was the reigning prince there: this fact disproves the statement of the 'Rásá' that Ráwal Samar Singh married the sister of Prithí Ráj, and was killed with him in S. 1158 (= A. D. 1101) which is impossible, because a son and successor can by no means reign two centuries after his father's death.

(1.) Thus, a mistake of a very serious nature was caused by the 'Prithí Ráj Rásá' in the history of Mewár, *viz.*, that "Ráwal Samar Singh ascended the throne of Mewár in S. 1106 (= A. D. 1050) and was killed with Prithí Ráj Chauhán fighting on his side against Shahábuddín Ghorí in S. 1158 (=A. D. 1101).

This statement makes Ráwal Samar Singh flourish about two* centuries earlier than his actual existence, and having been believed to be true by the bards and poets of Rájpútáná, the period intervening between Ráwal Samar Singh and Mokul Jí was thus lengthened; and the poets had to adjust this ignorantly or blindly made up long period among the reigns between Samar Singh and (the death of) Mokul Jí, and the gap was thus bridged over.

(2.) In like manner, the historians of Jodhpur took for granted the S. 1132 (= A. D. 1075) for the accession of Rájá Jai Chandra Ráṭhor of Kanauj, because Prithí Ráj had married Sanjogitá, daughter of Jai Chandra. They too divided the hundred years of the error among the number of generations between Jai Chandra and (the death) of Rao Chaṇḍá of Mandore.

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* 1344 — 1158 = 186 years.

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Jai Chandra's accession could not possibly have been in S. 1132 (= A. D. 1075).

The Journal of the Asiatic Society of Bengal for 1864, Vol. XXXIII, No. 3, p. 232, has a table of the Ráṭhors of Kanauj, by Major-General Cunningham:

	V. S.	A. D.
Chandra Dev................	1106	1050
Madan Pál	1136	1080
Govind Chandra	1171	1115
Bijai Chandra	1221	1165
Jai Chandra	1231[*]	1175

That is Jai Chandra lived about one hundred[*] years after the Samvat accepted by the Jodhpur historians for his accession, as concluded from the 'Prithí Ráj Rásá.'

Again, referring to the inscriptions in the Journal of the Society of Bengal for 1858, No. 3, pp. 217-221, that is, copper-plates published and translated by Fitz-Edward Hall.

(*a*) Madan Pál Dev's Grant—S. 1154 [= A. D. 1098, p. 221].

(*b*) Govind Chandra's Grant—S. 1182 [= A. D. 1126, p. 243].

That is, even these sovereigns lived later than S. 1132, the year fixed upon for Jai Chandra's accession, who really lived much later than they.

(3.) In the same way, the bards of Amber (Jaipur) adopted S. 1127 and S. 1151 corresponding to A. D. 1071 and A. D. 1095 for the accession and the death respectively of Prajun Jí Kachhwáhá, who is named among the heroes of Prithí Ráj, the hero of the '*Rásá.*'

These dates also can never be correct. Though I have nowhere come across the exact year when Prajun Jí preceeded to the gadí, yet, if he was a warrior of Prithí Ráj, he must evidently have lived about S. 1249 (= A. D. 1193) which is the correct year of Prithí Ráj's death.

(4.) In like manner the annals of Búndí, Sirohí, and Jessalmer &c. have recorded incorrect eras, as found in or deduced from the 'Rásá' —a fact which interfered seriously with the true aim of annalists to record true years.

The argument that the scribe through mistake might have put down Samvat 11 hundred for 12 hundred, will be refuted on the following grounds:—

(*a.*) The term 'twelve' cannot be replaced by 'eleven' in poetry, as the metre would not hold good.

(*b.*) The 'Astrological terms' 'S'iva' and 'Har' used in the 'poem' for 'eleven' cannot indicate 'twelve,' nor can twelve be substituted for them.

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[*] 1231 — 1132 = 99.

(*c.*) The same years (*viz.*, eleven hundred) are found in the MSS. of the 'Rásá' about one or two centuries old, as well as in comparatively modern ones.

(*d.*) It is not as if the years were mentioned only in one or two places which might be due to a mistake of the scribe; they are found in many places, and moreover the years, months and dates are written in *words* in the form of couplets and verses in the horoscope of Prithí Ráj, given in the Rásá.

The horoscope on being examined by Náráyan Dev Shástrí [a learned Pandit of Benares, and who is in the Mewár State service] has not been found to tally with the data, according to his calculations given below:—

Data.

"Born in S. 1115, on Thursday, the third of the waning Moon of Baisakh. It was the Chitrá Nakshatra, and Sidhi Jog—one and a half ghaṭikás previous to sunrise, when the child was born. His name being Prithí Ráj, his Ráshi is the first half of Chitrá, *i. e.*, Virgo or Kanyá: the Moon and Mars are in the 5th mansion, and Virgo is also in the same: that is, the birth took place in the Vṛisha Lagna; Saturn is in the eighth; Jupiter, Mercury and Venus in the tenth; Ráhu in the eleventh, and the Sun in the 12th mansion.

Quæsita.

Required to find out whether these combinations are correct or otherwise according to astronomical calculations.

Now, according to the Súryasiddhánta the third date of Baiśákh Badi S. 1115, falls on Sunday.

Kali Jug Ahargan, *i. e.*, the number of days since the commencement of Kali Jug is 1519100;

स्पष्ट सूर्य (clear Sun)—11/21/24/49;

स्पष्ट चन्द्र (clear Moon)—6/16/27/17;

Nakshatra should be Swáti—(स्वाती) and *Jog* should be Vajra—(वज्र).

Since the birth happened before sunrise, the Sun could never have been in the 12th mansion from the Lagna; the Sun is in the 12th mansion in the Vṛisha Lagna, when it is in मेष (Aries ♈): but in the data it is in मीन (Pisces)—which is impossible.

The position of the other Planets or Grahas, *e. g.*, Mars, &c. need not be discussed; because the position of the Sun having been shown to be incorrect, it is certain that the other combinations recorded in the horoscope are also impossible.

In the same way the Samvat 1158 is assigned by the "*Rásá*" to the last battle with Shahábuddín, which resulted in the death of Prithí Ráj—and the date is said to have been Amávásyá or the 15th day of the waning Moon of Shrávan; the Sun to have been in (the sign of) Cancer (कर्क) the Nakshatra Rohiṇí and the Moon to have been in Taurus (वृष).

Now, if the Moon be in Rohiṇí, the Sun should be in Taurus: but according to the rule, the Sun and the Moon must be in one and the same Ráshi.

That the Sun should have been in Cancer seems correct: but the Moon could not have been in Taurus as told in the 'Rásá'; on the other hand it must have been in Cancer.

Thus it seems the author was quite ignorant of astronomy, and hence he did not notice this mistake: it is also rendered manifest that he was not the court-bard of Rájá Someśwara Dev or Prithí Ráj, as in that case he must have known the true dates and combinations of the planets when the latter was born.

I think the arguments so far stated are sufficient to prove that the 'Prithí Ráj Rásá' was not composed by Chand or in his time.

IV.

Then the question naturally arises, "When and by whom was the Epic composed?" if not by Chand Bardáí.

I have stated the poem to be the work of some poet of Rájpútáná, and I venture to say I can prove the period of the composition on the following grounds:—

(1.) In the poems composed in Rájpútáná before Akbar's time and still available, Persian words and expressions are not met with: only the words of Sanskrit, Braj Bháshá, Mágadhi or Prákrit, Rájpútáná dialects, and sometimes of Gujaráti also are found.

The Princes of Rájpútáná opened intercourse with the Imperial Court during Akbar's time. Rájá Bhárá Mal Kachhwáhá of Amber (Jaipur) went to the Court in S. 1619 (= A. D. 1562) for the first time. In his domains there were very few Máṛwáṛi poets, and Braj Bháshá poetry is still widely prevalent there. The poems now available about the Rájás of Jaipur or their brotherhood, are found to have been composed by Márwár or Mewár poets: that is Márwár stands first, and Mewár holds the second place as far as Márwári or Dingal poetry is concerned.

The intercourse of the poets of Márwár and Mewár with the Imperial Court commenced during the latter days of Akbar's reign.

When the dispute between the sons of Rao Mál Dev of Jodhpur was over, and Udai Singh was established on the throne in S. 1639

(= A. D. 1582), he commenced living at Akbar's Court: since that time the intercourse of the Márwár poets became more frequent, and several other famous Hindí poets got encouragement at the same time, *e. g.*, Gosáin Tulsí Dás, Keśav Dás, Súr Dás, Bárhuts Narhar Dás, Íśwar Dás, and Lakhá &c., &c., and a greater proportion of Persian words found way in the poems of Hindí produced in Rájpútáná.

On perusing the 'Prithí Ráj Rásá' Persian words are found to exist in it in the proportion of 1 : 8, *or* 1 : 10 to Hindí, Máṛwáṛi and Sanskrit words or to those of any other Indian dialect.

After S. 1640 (= A. D. 1583), the people of Mewár commenced intercourse with the Imperial Darbar: the Mahá Ráná of the time (Pratáp Singh) did not go there, but some of his relatives, who were dissatisfied with him, did go, as for instance Shakat Singh, Jagmál and Sagar Singh, and many poets accompanied them; and Persian words came to be greatly introduced in the poems of Mewárí and Máṛwáṛí tongues.

The 'Prithí Ráj Rásá' was in my humble opinion composed at some date during the thirty years between S. 1640 (= A. D. 1583) and S. 1670 (= A. D. 1613); which I proceed to show:—

I. In the Hammír Kávya composed about S. 1540-42 (A. D. 1484-86), which describes the battles fought by Chauhán Hammír and his ancestors, the description given of the battle between Prithí Ráj and Shahábuddín Ghorí, does not agree with that given in the 'Rásá;' neither do the genealogical tables of the Chauháns agree in these two poems.

It is a matter of common sense that, if a standard work like the 'Prithí Ráj Rásá' had been composed before the 'Hammír Kávya,' the author of the latter would certainly have borrowed facts from it.

II. Had the 'Rásá' been composed even a century or two after Ráwal Samar Singh's time, mistakes of so serious a nature could not have occurred, as are actually seen. We generally do not find such mistakes in the Samvats or dates of kings who lived two, or two and a half centuries before a history is written.

Thus it follows, the 'Rásá' was composed about three centuries after Samar Singh's time; and the latter lived about a hundred* years after Prithí Ráj.

Hence it follows that the 'Prithí Ráj Rásá' was fabricated about four centuries after Prithí Ráj's or Chand's age; and the author based his fabric on some corrupt history.

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* Prithí Ráj died in S. 1249. Ráwal Samar Singh ruled till about S. 1344; the difference in their periods is thus 1344 — 1249 = 95 years.

Now, I proceed to prove the 'Rásá' to have been written after S. 1640.

The author has praised the kings of Mewár very highly in the name of Ráwal Samar Singh—whom in one place, where pronouncing benedictions, he calls by the following epithets:—

(*a*) "कलंकियां राय कदार;
(*b*) "पापियां राय प्रयाग;
(*c*) "हत्यारां राय वाणारसी;
(*d*) "मद्वान राय राजान री गंग;
(*e*) "सुलतान ग्रहण मोखन;
(*f*) "सुलतान मान मलन ॥"

These, when translated into English, would stand respectively thus:—

(*a*) (Like the god) Kedárnáth for (removing the stain of) those who are charged with anything disgraceful;

(*b*) (Like the sacred shrine of) Prayág (the modern Alláhábád) for the sinful;

(*c*) Vánárasi [correctly 'Váráṇasi' the modern Benares] or 'the Sacred City of the Hindús' for those who are charged with murder—one of the deadly sins;

(*d*). The Ganges for drunkards or proud kings [मद्वान राय].

(*e*) Who liberated (the) Sultán after once taking him prisoner.

(*f*) Who crushed (the) Sultán's pride.

All these titles allude to Mahá Ráná Saṅgrám Singh of Mewár. The fourth epithet (*d*) suggests that the other Rájás yielded to the Muhammadan Sultáns and prided themselves, also that they indulged in wine. The Ránás of Mewár did not take wine—hence the title गंग (Ganges), for the purification of those Rájás, is given to them (Ránás) with a taunt to the latter.

The fifth title (*e*) alludes to the fact of Mahá Ráná Sangrám Singh's having captured Sultán Mahmúd of Málwá in A. H. 924 (= A. D. 1518 = S. 1574), and afterwards setting him free.

The last title (*f*) alludes to the kings of Gujarát, whom the Mahá Ráná had defeated and plundered their territory.

Several other poets of the period have described the Ránás of Mewár similarly:—

१ दो० अद रे अकबरियाह—तेज तुहालो तुरकड़ा।
नम २ नीसरियाह—राणबिनासहराजवी ॥
२ अकबर घोर अंधार—ऊंघाणा हिन्दू अवर।
जागे जग दातार—पोहोरे राण प्रताप सी ॥

Translation.

(1.) O! Akbar, O! Turk, to thy glory, all the Rájás yielded, except the Rána (of Udaipur).

(2) Akbar resembles a deep darkness; all other Hindús felt their eyes heavy with slumber; whereas Rána Pratáp Singh* was on the watch, who was a great benefactor of the universe.

[The poets stamp a stain of disgrace on those Hindú Rájás who offered service, and gave away daughters in marriage, to the Moslem kings.]

From the six epithets quoted above, it is easily inferred that the 'Rásá' was composed after Mahá Rána Sangrám Singh had defeated the king of Málwá in S. 1574 (= A. D. 1518); and the presence of Persian words in the 'Poem' indicates that it was composed after S. 1640 (= *A. D.* 1583), when the first intercourse of the poets of Rájpútáná with the Imperial Court was opened, and they allowed Persian expressions to adulterate their style.

(B.)

Having shown the 'Rásá' to have been written after S. 1640 (= A. D. 1583), I shall now prove that it was composed before S. 1670 (= A. D. 1613).

In the Dillí-kí-kathá (दिल्ली की कथा) Prastáv we find the couplet:—

दो॰ । सोरे से सत्तोतरे—विक्रम साक बदीत।
दिल्लीधर चीतोड़पत—से खग्गां बल्ल जीत ॥† III. 31.

= In S. 1677 (= A. D. 1620) of Vikram's era, the lord of Chitor would conquer Delhi.

Here the poet delivers a prophecy that the kings of Chitor would take Delhi.

Therefore, it is quite evident that the couplet and hence the poem was written some time before S. 1677.

It was probably written before S. 1671 (= A. D. 1614)—because in that year a treaty was concluded between Mahá Rána Amar Singh I., and the Sultán Jahángir, through the mediation of Prince Khurram. Therefore the above-mentioned prophecy could not have been delivered after S. 1671, when the treaty was concluded, because then all thought of ever conquering Delhi on the part of the Ránás had vanished. They had left off shaving (the head), eating out of a metallic plate, fastening the sword to the belt, and keeping the kettle-drum in the van of their processions, long before S. 1671, in Mahá Ráná Pratáp Singh's time (whose reign ended in S. 1658 = A. D. 1601),—with an oath to revive* these customs only on retaking Delhi.

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* Reigned from S. 1628—1653 (= A. D. 1571—1596).

† [Col. Tod's MS. has मेवाल for चीतोड़.—Ed.]

The noble deeds of the Ránás of this State during S. 1640-70, and the awe inspired by Mahá Ráná Sangrám Singh and his predecessors in the minds of the people led them (people) to cherish a sanguine expectation that some Ráná or other would take Delhi; and with this idea the author of the 'Rásá' inserted the couplet in his production.

I do not hold the narrative of the 'Prithí Ráj Rásá' to be totally incorrect; but it is clear enough, that the author must have based his fabric on some wrong annals.

My main object in writing this paper (for publication) is to caution the public against the incorrect dates given in the 'Rásá' and against the belief that it was composed by Chand Bardái, or even by any author who was his contemporary.

The spuriousness of the Rásá, and my doubts as to its antiquity, are further confirmed by the fact that its narrative, and the names of persons and dates as found in it, do not agree with those in the Persian works of Prithí Ráj's time.

I second the statement made by Vincent A. Smith, Esq., B. C. S:—

"The Rásá as we now have it, is misleading, and all but worthless for the purposes of the Historian." [J. A. S. B. 1881. Pt. I, No. I, page 29.]

APPENDIX.

Inscription I.

[This Inscription is very corrupt, being full of mistakes made by the Inscriber, who makes no distinction between स, श and ष, and has made a mess of the vowel-marks (मात्रा) and the Anuswáras and Visargas. Here and there some letters have been defaced: thus it is very difficult to arrive at the original readings and the author's meaning; but the Pandits here have tried their utmost to make the best of it as it stands. The transcript was taken on Gokank paper, and deciphered by Pandit Rám Pratáp Jotishí, a good Sanskrit scholar and the only antiquarian in the city.

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* Not revived till now. The Ránás do eat out of a metallic dish, but still a leaf-platter is placed underneath it.

The inscription measures 12 ft. 9 inches at the longest, and 8 ft. 6 inches at the shortest part in length, and the breadth is about 3 ft. 8 inches. Altogether, there are 30 lines, and 92 ślokas.

The first ten ślokas are a salutation to the Baudha divinities: then a genealogy of the Chauháns, in which all the names are not clearly made out, is comprised in the ślokas 11—29 (inclusive). Our translation extends only so far, as the rest of the inscription is not pertinent to our purpose; the inscription is valuable for the date and the genealogy, which differs from all other tables.—Trans.]

Translation (from the Hindí).*

1. Obeisance to Him, who has given up all worldly concerns.

I bow to, praise meditate upon, and seek the protection of the light existing in the soul, which is intelligent, self-effulgent, without beginning and without end, felt only with wisdom, ever-glorious;—which enlightens the understanding of the creatures, is known by the name "Syát,"† and but to exist, is all-pervading, the most wonderful, the *summum bonum* or the source of all good and joy, and ever-existing.

2. May the peerless sun of righteousness be the source of your (*i. e.*, of the audience-mankind) peace and happiness—that never sets, is not reckoned among the inauspicious planets, the strength of whose rays is not unbearable............who does no one ill.

3. There was the sage S'ánti Nátha—whose both beautiful hands with brilliant nails stretch out to cherish and satisfy the accomplished goddess (Lakshmí) of happiness for the people of the world, blessed with sons and prosperity, and for these fortunate (or learned) men bending low with humiliation, like the decorated ground of Braj for Lakshmí, the spouse of Vishṇu, to sport upon.

4. I bow to the very mighty one Nemi Nátha—who sounded the Páñcha Janya or Krishna's conch, while breathing through the nostrils .... with the tip of the lotus-like ....; who fully strung the bow of Vishṇu called S'árnga (शाङ्ग) with his thumb, like Bala-Ráma (who had a plough for his weapon), and whirled it about with the finger.

[This is an allusion to Nemi Nátha's having gone to Dwáriká where Krishna lived, and blowing his conch and stringing and whirling his bow—each of which was unwieldy for any one else but Vishṇu himself. A lotus was his (Nemi Nátha's) emblem.—This story has been taken as recited by a Jati, and is well-known to the Jains.]

* [The Hindi is, as will be seen, rather a loose paraphrase of the original Sanskrit. It is impossible to effect a literal agreement between the two, the general sense of the Sanskrit seems, however, fairly expressed in most places.—Ed.]

† The formula for the Deity, of the Syádvádin sect of the Jains.

5. May the Tirthánkara* Párśwanátha have success! whose lecture-ground is gazed upon by the curious spectators in great admiration, the fore-part of the lofty rampart of which is closely crowded with the leading gods, which is surrounded on all sides with streamers, brilliant with the sun-gem and rendered vocal with jingles or bells.

6. May the ever-prevailing enshrinement of (Vardhamána) Mahávíra who excels the heroes, ever be on the increase.

[In this śloka the poet makes a display of his poetical talent; he repeats the same line twice, which admits of a double meaning by श्लेषालङ्कार.]

7. I pray Saraswatí who bestows riches, strength and the essence of things, who is wise, and an incarnation of the Vṛittis,† and generous in giving enjoyment and salvation to her votaries.

8. We worship with success the lords who always remain absorbed in devotion, who are independent or self-willed, and as it were an ocean (of ambrosia in the form) of the greatest degree of mercy; at the head of whose list stands Nábheya (the son of Nábhi Rájá), *i. e.*, Ṛishabha Deva (ऋषभदेव). They who have obtained salvation by receiving the best portion of the light of these lords, adorn like a garland of pearls the bosom of the fair one (who is) deliverance.

9. Oh! ye twenty-four (Tirthánkaras) of Jainism, the source of rejoicing to the hearts of humble or good persons, the support of 'True Piety', who destroy the actions which cause birth and death, a series of the sources of good, who have undisturbed wisdom, and take an interest in the good of beings, the (cradle) source of (the goddess Lakshmí of) bliss, the sustainers of the world, ye guide us aright into good actions.

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* The following is a list of the 24 Tirthánkars:—

1. Ṛishabha Nátha.
2. Ajita Nátha.
3. S'ambhú Nátha.
4. Abhinandana Swámin.
5. Sumati Nátha.
6. Padma Prabhu.
7. Supárśwa Nátha.
8. Chanda Prabhu.
9. Subudha Nátha.
10. S'ítala Nátha.
11. S'reyámsa Nátha.
12. Vasu Pújya.
13. Bimala Nátha.
14. Ananta Nátha.
15. Dharma Nátha.
16. S'ánti Nátha.
17. Kuṇṭha Nátha.
18. Aru Nátha.
19. Malli Nátha.
20. Muni Suvrata Swámin.
21. Nemi Nátha.
22. Araṭha Nemi Nátha.
23. Párśwa Nátha.
24. Mahávíra Swámin.

† 1. कैशिकी, 2. सात्वती, 3. भारती, and 4. आरभटी. In this śloka Saraswatí is called भारती, the third Vṛitti of poetry.

Genealogy of the Chauháns.

10. The rare first-born (king) in the noble race of the Chauháns was Jaḍáwtadwa* [or Jadáw Chandra] who was ever-thriving, successful in all his actions, knew the hidden policy of kings, possessed armies and other influence, and never bowed to anybody.

11. Noble-looking, free from blemish, brilliant, tender-bodied like a wreath of flowers, wearing garments, white like limpid and pure wavelets, bending (modestly) with the weight of (breasts in the form of) high† (?) hills, such a one, the goddess Sákambará‡ is like Lakshmí the spouse of Vishṇu.

12. In Ahikshetrapura, the first ruler was Púrṇatalla surrounded with numerous warriors, like a bed smiling with flower-plants.

13. From him were descended Jai Ráj and Vigrah Ráj—Chandra and Gopendra—the last was succeeded by Durlabh Ráj, then ruled Gúrvak, Shashi Nrip, and after the latter Gúwák and Sachandan; (then the throne was occupied in turns by) Vapyai Ráj, who ruled over the Vindhyá mountains, Singh Ráo and Vigrah; then ruled Durlabh, Gúndú, Vákpati, and lastly his younger brother Vírya Rám succeeded.

14. Then ruled Chand, Sri Singh the foremost among the Ránaks, from the latter was descended Dúsal, then came his brother Bísal, the beloved (lord) of Ráj Devi; his son was Prithvi Ráj I., the lord of Rásalya Devi, to him was born Jaidev, the consort of Saumalla Devi.

15. Who after killing three Rájás, the first of whom was Yasho Ráj the Padhingamichal, defeated the chief whose name was Solhan Dand in the field of battle; and as it pleased him best, he kept him in irons, and committed him (alive) to a fortress with an entrance resembling the mouth of *Yam*.

16. His son was Arṇo Ráj who kept Hari (Vishṇu) in his heart, who was the seat of virtue, whose vastness or range was aimed at, who was rare (great) in depth and generosity, whose depth could be sounded by none.

The king as well as the ocean were the seats of Hari, but it is marvellous that unlike the ocean the former had neither mire, nor was capable of being churned, nor deprived of wealth (Lakshmí); neither the generator of the mine of guilt§ (the Moon), nor was he served by double-tongued (serpents) hypocrites.

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* This name cannot be properly made out in the transcript, which in this and in other places seems full of mistakes.

† …… ग appears to be उत्तुंग ।

‡ The name *Sámbhar* is the present form.

§ दोषाकर may also mean 'that which causes night.'

17. His stern rule (iron-hook) had as a matter of course, freed his kingdom from (the elephant of) wickedness, or conquered the country of Kuśaváraṇ. It is to be wondered at that, he had thrown the reputation of Indra into the shade by acquiring salvation and Náráyaṇ with his piety.

18. From Arṇo Ráj was descended Vigrah Ráj, the light of the earth, which is no matter of surprise. But it is astonishing that the descendant of that Arṇo Ráj (ocean), namely the Moon, is devoid of sensation, liable to waning, and marked with spots. [Whereas Vigrah Ráj, son to the king Arṇo Ráj, was free from these defects.]

19. His hand imparted its beauty to his terrible sword, which was graceful in the act of killing, and crushed the pride of mad and noble elephants.

20. He was prepared to proceed to the world of Yam a he, one of the noblest among men, seizer of lands, expert in wielding the lance, ascended into Heaven, as he was really a Protector of the needy and the distressed.

21. He converted Jáválipur into Jwálápur ('City of Flames') by setting it on fire; reduced small villages into hamlets or mere collections of huts; his anger rendered the strength of his foes as frail as the thread of the mandár-cotton (the white flower with radiating threads that issues from the plant called Asclepias gigantea).

22. Whose fame, acquired by means of his getting a sword and wearied from not succeeding in taking Delhi, spread in the streets as well as in chimney-rooms. [असिका लाभ लंभितं has been explained above = "acquired by means .... sword." If the reading is मासिका लाभ लंभितं the meaning would be = "Whose fame, *blackened only* by his failure in taking Delhi," &c.]

23. His elder brother's son was named Prithvi Ráj II, who resembled Vishṇu in preserving his subjects, and chased away poverty from his dominions, by giving away kine and gold(-en hills) in charity to the poor.

24. He, who was thoroughly devoted to religion, dedicated the village of Morákri to the self-revealed Párśwa Nátha for enjoyment (in this world) and salvation (in the next).

25. He cherished the Bráhmans by giving them gold in charity, and by performing the ceremony of Tuládán (giving his own weight in gold) on ten several occasions, as well as by grants of towns (and villages), he defeated the intelligent king Vastu Pál and took his beautiful elephant named Mansidhi.

26. He was followed by king Someśwar who got his kingdom with the blessing of the god Someśwar; and being his true devotee, he came to be regarded like S'iva among mankind.

27. He, the very potent one, got the surname of Pratáp Lankeśwar: from his presence the chief (among the powerful) enemies fled, and many met their death by his sword.

28. Actuated by a desire to enter the Heaven, he offered the village of Rewná (during his administration), to the self-existent Párśwa Nátha:

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[The ślokas 29—90 give a genealogy of the person who built the temple.]

* * * * *

Dated S. 1226 (= A. D. 1169)—Thursday the 3rd of the dark semi-lunation of Phálgun at the time of the Rohiní Nakshatra, Vṛidhi Yog, and Taitil Karan.

Inscription VI.

[This Inscription measuring 3 feet 2 inches by 3 feet runs to the length of 48 lines, each containing 70 letters on an average, and consists of 62 ślokas of different metres. The ordinary salutation to the gods ends at śloka 10th; then we read a genealogy of the Ránás of Udayapur, from Bápá Ráwal to Samar Singh, which ends at the 48th śloka. The following translation is an English version of the Hindí rendering of the Gujarátí translation (of the text) found in a collection of inscriptions, published in Ahmedábád in Guzerat.—Translator.]

Translation.

1. Obeisance to S'iva! whose might, capable of being known to himself and naturally free from impurity, is but little appreciated by Brahmá (the Creator) and other gods. May the lord Achaleśwara, free from all concern with the universe, who liberates the beings of the world who are absorbed in Him from its bonds, be pleased ever to give us bliss.

2. Who seated on a lotus [or a Padmásana, a seat or throne made in the shape of a lotus, on which idols are placed], offers the oblation of souls (vitality) to (the sacrificial fire of) the body for Creation's sake; prior to such a one the Omnipresent Being, was born S'iva having a Níla-lohita (with a blue neck and red hair) body.

May S'ankara (S'iva), holding in his lotus-like hand, the brilliant fifth head of Brahmá, forcibly detached from the trunk, with the tip of the nail of his (S'iva's) wicked* thumb, protect you.

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* Because charged with *Brahmá-hatya* = murder of a Bráhman.

3. May the elephant-faced god Ganes, grant you wealth, who is the remover of misfortunes, whose brilliant temples (like mountain-peaks) are buzzed about till now by a swarm of black bees, which are as it were performing penances to him, with a desire to get rid of their black colour, and repeating a humming prayer composed of (letters or) sounds which we cannot make out, having given up all other occupation, and feeling honourable pride or intoxication.

4. May Hanúmán deliver us from evil, whose wonderful leap to cross the ocean,* set the terrestrial sphere a-whirling, by causing a cloven range of mountains to fall down in the shrinking ocean, caused the sky to burst asunder and come down and the points of the compass to contract to a centre, that disturbed the equilibrium of the (vessel of the) universal frame, and thus threw the world into a state of agitation resembling that (which happens) at the end of a kalp (the destruction), although the day had not arrived.

5. The foremost (noble) race of Gohil is triumphant, whose lineage, is formed of a number of clans and sub-clans, having good qualities, recognised as the head of Princes or ruler of mountains, resembles the bamboo plant, of which the joints have a number of branches large and small, which is suited to have a bow-string fastened to it, and crowns the crests of hills.

6. That the race of this Gohil has the reputation of Náráyaṇ or Vishnú among the kings, is right, else how could the kings, [whose purpose is to attain salvation, holding white *daṇḍas* (mendicants' staff) in the form of canes (for inflicting punishment), inclined to the protection of lives, and ever enjoying the blessing of wealth, allow their hands full liberty to deal in charity by giving away money], have reposed confidence of protection in it?

7. The territory, well-suited to remove misfortunes, saturated with the filthy odour exhaled from the (decomposing) fat of wicked persons (killed) by Bápá Ráwul, excelling the Paradise in beauty, and bringing the pride of all other cities of the world to a test, bears the name *Med-pát* (the modern Mewar).

8. There is in this land of Mewar a town (named) Nághrid (now the village of Nágdá) well-deserving celebrity, where the sage Hárit rich only in penances, performed austerities.

9. There are many well-to-do householders, who have commenced a series of sacrifices for the welfare of the world, being pious, and having a store of articles fit to be burnt as oblations (or virtue), they satisfy Agni (the god of fire) with those substances.

There are also a great many sages, who have won felicity by practising Práṇáyám (a system of Yog in which the breath is drawn in through the nostrils, and then exhaled in the opposite direction after a periodical stoppage), who have acquired true wisdom, and seated in a lovely and charming spot, perceive the Deity existing in the soul.

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* While on search for Sitá.—Rámáyan.

10. In that forest, where ascetics practise Yog and are generally freed from the bonds preventing the approach to heaven; Hárit Rishi who subdued the senses by the practice of Yog, who clearly sees the occurrences of the universe, and attained final absorption into Ṣiva, the abode of the result of ascetic severities, granted (the goddess of) royalty to his votary, the renowned Bápá Ráwal.

11. Bápá Ráwal artfully transferred the characteristics of a Bráhman (acquired during his breeding in a Bráhman household) to Hárit Rishi resembling Brahmá in his prowess, as it were by means of his services to the sage: and in return he received, the splendour of a Kshatriya from the Rishi, in the form of a golden anklet. The descendants of Bápá called Gohils incessantly adorn the earth like so many incarnations of Kshatriyadom up to the present day.

12. Bápá Ráwal's son was Gohil who dealt out justice impartially; the Rájás descended from him are distinguished by the title of Gohils (the modern Gohilots or Gehlots).

13. From Gohil was descended Bhoj, whose intellect was brilliant like a ray of nectar, whose ornament was (the ambrosia of) learning, who could easily hold the passion of love in subjection, and was of extremely good and charming (amiable) manners, who crushed the pride of the ocean, (which is deep and a seat of fortune) and was a worshipper of the Lord of Lakshmi, *i. e.*, Vishnú.

14. He was succeeded by a king named Shil, whose hand was terrible with a wanton sword, who had a horripilation expressive of exquisite delight or spiritedness, and a body like an incarnation of the high sentiments themselves, who was a great warrior, and enjoyed the wealth of the enemies (slain by him).

15. His son was Kálbhoj, who cut asunder the love of the females (of Dravida and Kalinga or) who wear garments reaching down to the toes, the crown of the kings of noble races, who inflicted punishment on the rulers of the Carnatic, who took delight in worshipping the images of Vishnú, well-versed in the mysteries of law and witticism, (whose strictness was) unbearable from his dealing punishment with a violent bow true to its aim and terrible like death.

16. Then came Bhartri Bhat, who satisfied women with his protection, and the learned men with presents, the quarters of the world with lots of conveyances, the Bráhmans with (handsome) presents and gifts on the occasions of births (of descendants), who were made as happy as

the fountains of delight, who had stout progeny and was very charming, protected the earth and crushed the pride of the Kalpa Briksha (the fabulous tree that grants all felicity).

17. To him was born a Prince named Agh Singh, who was slender-waisted and broad-chested, terrified the kings, who support the earth (like the elephants at the corners), or the mad elephants of the mountains.

18. His son was Samháyak who trusted to his own valour and prowess, never yielded to any one, and bore the heavy burden of State (or the earth, like the King of Serpents), from (the sparks of) whose anger (resembling the fire in fierceness) the troubled foes were dispersed, and in which (sparks) wicked people feeling a difficulty in subduing the senses, fell like so many insects (gathering round a lamp or fire).

19. He was followed by Khumán, whose sword (like a nimbus-rain-cloud) fell upon (drenched) the best of warriors with its sharp edge (like a piercing shower) in the sky of the day of attack, overclouded with the dust rising up from the ground by the tread of forces: it is wonderful that the red powder, besmearing the breasts of the wives of warriors (killed by him), was washed away with the tears black with the collyrium of their (wives') eyes, and similarly, the hearts of clear-intellected men are peeling like a roar of thunder when lightning falls (to the ground).

20. Then succeeded Allat, who was invincible in battle and a rival of death in killing, as his terrible sword conquered the forces of his enemies in mere sport.

21. Next was born Narváhan, who captured the conveyances of his rival kings in battle, worshipped Ṣiva with conscientiousness, struck awe and terror in the hearts of all his enemies.

22. After him succeeded Ṣakti Kumár who eradicated the policy of all his enemies with his valour, who was free from stain and possessed good qualities, the renown of whose noble deeds excelled even the stars in brilliance.

23. From Ṣiva, whose feet rest over high mountains, was born the beautiful Swámi Kártik: so from Ṣakti Kumár, whose feet rested on the crown of great Princes, was descended king Ṣuchi Varma who displayed his terrible strength to his enemies.

24. Verses celebrating the heroic deeds of whose hands were chaunted by the celestial maidens of melodious tones, who was entitled to the reputation of Indra in heaven, on account of his great and noble actions, such a one Ṣuchi Varma was succeeded by Nara Varma, who turned pale the complexion of his enemies' wives agitated with love, who illuminated all the worlds with the lustre of his renown.

25. On Nara Varma's desiring to taste the delight of meeting the wives of the gods [*i. e.*, when he entered Heaven], the earth was protected by *Kirti Varma*, who was on a par with Indra in piety.

26. On Kirti Varma's,—who was very fierce, and weak from constant love (to acquire new possessions) and also devoted to very austere penances,—performing ablutions in (the sacred stream of) the Ganges (the Sindhu of Heaven) and sporting with the heavenly damsels, Bairad succeeded to the throne, who pulled down the houses of enemies with his hands, and had the forehead of his foes kept lower than his throne (in homage) on account of his valour.

27. On the death of Bairad, a source of delight to the host of his enemies, succeeded Bairi Singh, who made his name quite significant, as he was a lion among his rivals.

28. After him reigned a king Vijai Singh by name, who was a Lion with Victory for his title or surname, who had a broad chest and a slender waist, and caused mountains or (the hearts of) kings to tremble, even in sport; he was a destroyer of (elephants in the shape of) enemies.

29. His enemies' wives, pressed down with grief for their husbands' death, gave up the whiteness of their bodies with the sandal-paste applied to their breasts, and thus acted as it were the part of a Karṇikár (कर्णिकार, a species of the bread-fruit tree Lacucha) flower, which is red inside with a yellow coating on the outside. [In just the same way the interiors of their bodies were red, while the outside appearance was languid and pale with grief].

30. (He was succeeded by) Ari Singh (अरिसिंह) a great hero, who wrote down inscriptions of his noble deeds in all the quarters, with the ink composed of the smoke (soot) rising from the corpses of his enemies, burnt (to ashes) in the fire of his energy (rage).

31. Through his favour, learned* men's wives were enabled to paint their eyelids with collyrium, and filled their eyes with tears of delight. On the other hand, he deprived the eyelids of his enemies' wives of their collyrium (that was) washed away with tears of mourning; and thus it is wonderful that one and the same king produced double effects.

32. From Ari Singh was born Chond Singh, glorious as the Sun and brilliant like the crown-gem of princes, his throne shone over mountains as that of the Sun over Sumeru (सुमेरु).

33. The son of Chond was Vikram Singh, whose sword fell upon the temples of elephants (and cut them asunder), who overtook even

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* If सुमनस्त्री is taken to mean 'gods' wives,' there would be an allusion to the belief that heroes killed in the battle-field become gods.

Death itself in the battle-field, and spread a tale of his valour among his enemies.

34. Then ruled Kshem Singh for the prosperity of the earth, he rooted out all the (thorns) formidable enemies with the strength of his hands.

35. The wives of demons, grown senseless, and graceful in the act of staggering, occasioned by satiety or intoxication from drinking a portion of the blood, gave it in skulls filled up to the brim and overflowing, to their husbands, who drinking to an excess out of the vessels placed in the hands of jolly female attendants, merrily sing aloud the noble acts of that king in the battle-fields.

36. Kshem Singh found a successor in Sámant Singh, protector of the earth, excelling even Cupid himself in beauty, who seized all the property of the petty kings in his empire.

37. Kumár Singh then became the leader of the armies of the Gohils, of which the glory is curious [as led only by generals after Khumán whose descendants did not command in person][*] which never sustained a defeat, and he retook the lands that had been taken by adversaries.

38. Then succeeded a king whose name was formed by two words, one signifying a Lion, and the other meaning the crusher of the pride of his enemies' armaments; that is, his name was *Mathan Singh*, really significant of his qualities, for he defeated his foes with his valour.

39. His sword could assume double aspects in the field of battle: (1) While in the scabbard it did not sprinkle any blood at all; (2) When active in the field in spilling blood, it was not satiated and did not seek the scabbard.

40. After him king Padma Singh, the essence of the rest, protected the land of Mewar, and made it happy.

41. The learned Padma Singh, glorious like the lustre of a pearl got from the globes (resembling hill-peaks) over the heads of his enemies' mad elephants unseamed by his sword, nicely inscribed the song or narrative of the vigour of his arms on the tablet of battle-fields.

42. On Padma Singh's ascending the seat of immortals (*i. e.*, Heaven), succeeded king Jaitra Singh,[†] the strength of whose hands shook the foundations of an enemy called Nadole, and who was to the army of the Turks like Agastya to the Ocean. [As the sage Agastya

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[*] वियोग = separation. Taking it (= विशेषेण, योगः) to mean constant attendance, the [ ] would stand thus: 'as constantly led by the descendants of Khuman in person.'

[†] There is a small pillar at Ekling Ji, bearing the S. 1270 (= A. D. 1213), and records the name of Jaitra Singh as the then sovereign.

sucked up the Ocean, so the Turkish army was (devoured, *i. e.,*) killed with the sword of this Prince.]

43. Verses celebrating the heroic deeds of Jaitra Singh's hands are loudly echoed up to the present times in battle-fields by demons, intoxicated with a drink of the blood of the soldiers of the Sindhis (slaughtered by Jaitra), as well as jolly with the embraces of their (own) wives surrounding them.

44. After Jaitra Singh the earth was made splendid by the renowned piety of Tej Singh, who was quite free from fear, and planted the root of anxiety in the hearts of enemies.

45. Tej Singh, a tourist among crores of cultivators, sowed the seeds of (the pearl of) salvation (in fertile grounds) by giving away lands in charity, and by watering them with the handful of water (indicating a vow) for giving alms, and bestowing care on the field in the form of advices from a good spiritual preceptor, he obtained the fruit of virtue: and afterwards having performed ablutions, he raised a store of mounds of the spreading renown of his wealth in all the quarters.

46. This clever prince Samar Singh (son to Tej Singh), the tip of whose grinders shines like a touchstone delivered (the land of Gujarát) from its drowning state in the ocean (of the Turkish army), like the Boar Incarnation of Vishnú, and is administering his kingdom with a liberality and charity equal to that of Kurna and Bali (the types of Bounty).

47. O! son of Tej Singh, the renown established by your sword is celebrated in battle-fields till now, by demons holding in both hands the heads detached from the bodies of the slain (in battle), and striking them together as if to beat the time to the fourth cadence, and thus add harmony to the fine art of music, leading their beloved ones into a dance, and intoxicated with the blood of the enemy.

48. O! lord of men, all your noble qualities cannot be recounted, as there is a fear of their swelling up the volume of the book, because your character is formed of crores of strings of good qualities that cannot be numbered.

49. Abu reigns supreme as a gem among the mountains served by the gods, in which the sage Vaṣiṣtha, free from the 16* sources of vanity, performed austerities.

50. That bestows every sort of prosperity on those who are impatient under difficulties, and gives salvation to those who hold the passions in check, that is a seat of fortune, whose body is pure from the company of the sacred stream of the Ganges, in such a mount Abu, the powerful lord

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* 1, Earth; 2, water; 3, light; 4, air; 5, ether, = the 5 elements; 6, ear; 7, touch; 8, nose; 9, sight; 10, taste &c. = the 10 senses; and 16, the mind.

of Bhawáni, that is, Siva, the symbol of the all-pervading attribute, and thus moveable, has acquired a permanent and stationary abode.

51. Is not the monastery over this mountain a heap of the essence of all beauty? (a monastery) that had no beginning, and is wonderful and a fit abode for devotees.

52. In which a great many devotees and men of unblemished character, and also many gods have acquired emancipation of the soul, and thus (attained) the Supreme Being in all the (three) subdivisions of 'time,' of which the origin has been described with that of Abu by the authors of the Purāṇs, that monastery holds in this mountain the wealth of the three worlds, under the guise of (its existence in) the (three) past, present and future.

53. Samar Singh, lord of the masters of the earth, ordered the reparation of this monastery at his own expense for his welfare, because he is possessed with a zeal in such virtuous deeds, and very willingly founded an almshouse, with arrangements of dainty and sumptuous food to be distributed to the sages* at a great expense.

54. A high golden flag-staff was erected in honour of Achaleṣwar by Samar Singh, who perceived the life to be transient like wind and lightning.

55. This monastery was formerly occupied by *Bhávágni* the master of the place, who had rooted out all causes of the least dishonour in the world, by fastings in the worship of Ṣiva.

56. Having bodies pure from giving up all mutual enmity, whose minds are affectionate and who look upon mankind with pity, who have fully found out the principles of redemption, such lions and elephants perform austerities about this convent.

57. Bháv Ṣankar, the disciple of Bhávágni and like him in faith, is engaged in penances difficult of performance, with a desire of final absorption into Ṣiva.

58. The trees growing over mount Abu, always richly laden with fruits and flowers, express in numberless ways (by their roots and leaves), the diligence in continence of the sages who have eradicated the inclination for the pleasures of the sense, to the visitors.

59. Guided by the counsels of Bháv Ṣankar, king Samar Singh built this monastery with a golden flag-staff on Mount Abu.

60. Veda Ṣarmá the son of Priya Paṭú, a Nágar Bráhman of Chittore, who prepared the inscription that was placed in the village of *Ekling Ji*, among the temples of (Ekling Ji)† the lord of the three

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* सन्यासी = a Bráhman of the fourth order (of life).

† The shrine of Ekling Ji lies about 12 miles to the north of the capital, in a fine valley.

worlds, the Divine Samádhís Chakra, is the author of this Inscription also charming to the minds of the learned, and pure because it describes distinguished (and hence noble) qualities.

61. May this Inscription be a means of livelihood to the poets who read it, so long as the Lord Achaleșvar lives in (the company of) Mount Abu.

62. This innocent Inscription was marked with characters by Șubh Chand, and chiselled out by a clever mason named Karma Singh.

63. Dated S. 1342 (= A. D. 1285) on the first of the waxing Moon of Magsir (October).

APPENDIX.

I.

Text.

॥ श्रीपार्श्वनाथ जी का कुंड सूं उत्तर तरफ़ कोट नखे मोरडी नीचला अक्षर ॥
ॐ नमो वीतरागाय, चिद्रूपं सहजोदितं निरवधिं ज्ञानैक निष्ठापितं नित्यो-
न्मीलितमुल्लसत् परकणं स्यात्कार विस्फारितं सद्युक्तं परमाद्भुतं शिवसुखानं-
दास्पदं शाश्वतं नौमिस्तौमिजपामियामि शरणं तज्ज्योतिरात्मस्थितम् १
नास्तं गतः कुग्रह
॥१॥ संग्रहोवा नोतीव्रतेजा ॥१॥ — — — — — वः — — — — नैव
सुदुष्ट देहो ऽपूर्वो रविस्तात् समुदे व्यघोवः २ भवेच्छ्रीशांतिः सा सुतविभव
भंगीभवभ्रतां विभोर्यस्याभातिस्फुरितनखरोचिः करयुगं, विनम्राणामेषा
मखिल कृतिनां मंगलमयीं स्थिरीकर्त्तुं लक्ष्मीमुपरचितरंगा स्रजमिव ३
नासाश्वासेनयेनप्रव
॥२॥ लवल भ्रता पूरितः पांचजन्यः ॥२॥ — — — — — — — —
— — — पद्माग्रदेशैः। हस्तांगुष्ठेन सार्ङ्गं धनुरतुलबलं कृत्स्नमारोप्यविष्णो
रंगुल्यांदोलितोयं हल भृदिवनतिं तस्यनेमेस्तनोमि ४ प्रांशुप्राकारकांता
त्रिदश परिवृढ व्यूहबद्धावकाशां वाचालांके तु कोटीक्वणद्युमणिमणिकिं-
किणीभिः समंतात्, यस्य व्याख्यान भूमिमहह किमिदमित्याकु
॥३॥ लाः कौतुकेन प्रेक्षंतेप्राणभाजः ॥३॥ सखलुविजयतांतीर्थकृत् पार्श्वनाथः ५
वर्द्धतां वर्द्धमानस्य वर्द्धमानमहोदयः वर्द्धतां वर्द्धमानस्य वर्द्धमानमहोदयः ६
सारदां सारदां स्तौमिसारदान विसारदां भारतीं भारतीं भक्त भुक्ति मुक्ति
विशारदां ७ निः प्रत्यूहमुपास्महे नितपतोऽतंत्रानपि स्वामिनः श्रीनाभेय
पुरःसरान् परब्रपापीयूषपाथोनिधीन् यज्ज्योतिःपरभागभाजनत

॥४॥ या

मुक्तात्मतामाश्रिताः श्रीमन्मुक्ति नितंबिनीस्तन तटेहारश्रियं बिभ्रति ८ भव्यानां हृदयाभिरामवसतिः सद्धर्मतः संस्थितिः कर्मोन्मूलन संगतिः शुभततिर्निर्बाधबोधोद्धृतिः जीवानामुपकारकारणरतिःश्रेय श्रियांसंहृति र्देयान्मे भवसंभृतिः शिवमतिर्जिने चतुर्विंशतिः ९ श्रीचाहमान क्षिति राजवंश पौर्वाप्य पौर्वापिति जडावतद्दः भिक्षो

॥५॥ तवान

नृपरंभयुक्तो नोनिःफलः सारयुतोनतोनो १० लावण्यनिर्मलमहोज्वलिता गयष्टि रच्छोच्छलच्छुचिपयः परिधानधात्री — — गपर्वतपयोधरभारभुग्ना साकंभराजनि जनीवततोपिविष्णोः ११ विप्रश्रीवत्सगोत्रेभू दहिक्षत्रपुरेपुरा सामंतोनंत सामंत पूर्णतल्लो नृपस्ततः १२ तस्माच्छ्रीजय राजविग्रह नृपौ श्रीचंद्रगोपेंद्रको त

॥६॥ स्माद्दुर्लभगूवंकौशशि

नृपोगवाकसचंदनौ श्रीमदप्पयराजविंध्यनृपतिः श्रीसिंहराज्विग्रहौ श्रीमद्दुर्लभगुंदुवाक्पतिनृपाः श्रीवीर्यरामोनुजः १३ श्रीचंडोवनि पेतिराणकधर श्रीसिंहटोदूसल ऋद्धातायततो पिवीसलनृपः श्रीराजदेवीप्रियः पृथ्वीराजनृपोयततनुभ वोरासल्यदेवीविभु स्तत्पुत्रो जयदेव इत्यवनिपः सोमल्लदेवीपतिः १४ हत्वापधिग

॥७॥ मिंचलाभिधयसो राजादिवीरत्रयं

क्षिप्रं कुरकृतांतवक्रकुहरे श्रीमार्गं दुर्गान्वितं श्रीमत्सोलण दंडनायकवरः संग्राम रंगांगणे जीवन्नेवनियंत्रितः करभकेयेनष्टनि — — सात् १५ अर्णो राजोस्य सूनुर्द्धृत हृदयहरिः सत्ववाशिष्टसीमो गांभीर्यौदार्यवर्यः समभवदपरालक्ष्मध्योनदीत्सः तच्चित्रं जंतजाद्यः स्थितिरहतमहापंकहेतुर्नमध्यो न श्रीमुक्तोनदोषाकर

॥८॥ रचितरतिर्नंदिजिह्वाधिसेव्यः १६

यद्राज्यं कुशवारणं प्रतिहतं राजांकुशेनस्वयं येनात्रैवन चित्रमेतत्पुनर्मन्यामहे तंप्रति तच्चित्रं प्रतिभासते सुकृतिनानिर्वाण नारायण न्यक्काराचरणेन भंगकरणं श्रीदेवराजं प्रति १७ कुवलयविकासकर्त्ता विग्रहराजो जनिस्ततो चित्रं तत्तनयस्तचित्रं यच्च जडद्योणसकलंकः १८ भादानत्वंचकभादानपते परस्य भादा

॥९॥ नः यस्यदधत्वरवालः करालः क

रतलाकलितः १९ कृतांतपथसज्जोभूत्सज्जनो सज्जनोभुवः वैकुंठंकुंतपालो-

गणतोवैकुंतपालकः २० जाबालिपुरं ज्वाला पुरं कृतापल्लिकापिपल्ली वाततूल-तुल्यं रोषात्तदलं येन सौर्येण २१ प्रतोल्यांच वलभ्यांच येन विश्रामितं यशः ढिल्लिकाग्रहण श्रांतमाशिकालाभलंभितः २२ तज्येष्ठ भ्रातृपुत्रोभूत् पृथ्वीराजः प्रभु

॥१०॥ पमः तस्मादर्जितदीनागीहेमपर्वतदानतः २३ अतिधर्मरते—
पि पार्श्वनाथस्वयंभुवे दत्तंमोराकरी ग्रामंभुक्तिमुक्तिश्च हेतुना २४ स्वर्णादि दाननिवहै र्दंग्रभिर्महद्भिस्तोलानरै र्नगर दानचयैश्च विप्राः येनार्चितास्चतुर-भूपतिवस्तपालमाक्रम्य चारुमनसिद्धिकरी गृहीतः २५ सोमेश्वरालब्धराज्य-स्ततः सोमेश्वरोनृपः सोमेश्वरनतो यस्माज्जन सोमेश्वरोभवत् २६ प्रतापलंकेश्वर इत्यभिख्यांयः प्राप्तवान् प्रौढप्रथुप्रतापः यस्याभिमुख्ये वरवैरिमुख्या

॥११॥ केचिन्मृताः केचिदभिद्रुताश्च २७ येन श्री
पार्श्वनाथाय रेवातीरे स्वयंभुवे शासने रेवणा ग्रामोदत्तः स्वर्गायकांक्षया २८ अथ कारापकवंशानुक्रमः ॥ तीर्थे श्रीनेमिनाथस्य राज्ये नारायणस्य च अंभोधिमथनादेवबलिभिर्बलशालिभिः २९ निर्गतः प्रवरोवंशोदेववृंदैः समाश्रितः श्रीमालपत्तनेस्थाने स्थापितः शतमन्युना ३० श्रीमालशैल प्रवरावचूलपूर्वोत्तरः सत्वगुरुः सुवृत्तः प्राग्वाटवंशोस्तिबभूव तस्मिन् मुक्तोपमोवै अवणाभिधानः ३१ तडागग्रत्तने येन

॥१२॥ कारितं
जिनमंदिरं त्यक्ताभात्यायतस्तत्वमेकत्व स्थिरतां गतां ३२ योऽचीकरच्चंद्रसूरि प्रभाणिणाप्रेरकादौ जिन मंदिराणि कीर्तिंद्रमारामसमृद्धिहेतोर्विभातिकंदा इवयान्यमंदाः ३३ कल्लोलमांसलित कीर्तिं सुधासमुद्रः सद्बुद्धिबंधुरवधू धरणी धरेशः वीरोपकार करण प्रगुणांतरात्मा श्रीचंचुलस्ततनयं पदेऽभूत् ३४ शुभंकरस्तस्य सुतोजनिष्ट शिष्टैर्महिष्टैः परिकीर्त्यकीर्त्तिः श्रीजाटसोसूततदंग जन्मायदंग जन्माखलुपुण्यराशिः

॥१३॥ ३५ मंदिरं वर्द्ध
मानस्य श्रीनाराणक संस्थितं भातियत्कारितं स्वीयपुण्यस्कंधमिवोज्वलम् ३६ चत्वारश्चतुराचाराः पुत्राः पात्रं शुभश्रियः अमुष्या मुख्यधर्माणोबभूवुर्भार्ययोर्द्वयोः ३७ एकस्यांद्वावजायेतां श्रीमदांबटपद्मयौ अपर — — — — — — — लष्मटदेसलौ ३८ पाकाणां न्वरेवीरवेश्मकारणपाटवं प्रकटित स्वीयवित्तेन धातुनैवमहीतलं ३९ पुत्रौपवित्रौ गुणरत्नपात्रौ विशुद्धगात्रौ समशीलराशौ बभूवतुर्लष्मटकस्य जैत्रौमुनींदुरामेंदभिधौ

॥१४॥ यशस्वौ ४०

षट्खंडागमबद्धसौ हृदभराः षड्जीवरक्षेश्वराः षड्भेदेंद्रियवश्यता परिकराः षट्कर्मकृत्वादराः षट्खंडावनि कीर्तिपालनपराः षाड्गुण्यचिंताकराः सदृक्ष्यंबुजभास्कराः समभवः सद्देशलस्यां गजाः ४१ श्रेष्ठीदुद्दकनायकः प्रथमकः श्रीमोसलोकेगडि द्वेवस्पर्शं इतोऽपि सीयकवरः श्रीराहकोनामतः एतेतुक्रमतोजिन क्रमयुगाभोजैक भूमोपमामान्या राजशतैर्वंदान्यमतयो राजंति जंबूत्सवाः ४२ हर्म्यं श्रीवर्द्धमानस्याजयमेरोर्विभूषणं

॥१५॥ कारितं यैर्महाभागैर्वि

मानमिवनाकिनां ४३ तेषामंतश्रियः पात्र — — कः श्रेष्ठिभूषणं मंडलकरं माहादुर्गं भूषयामास भूतिना ४४ येन्यायां कुरसैचनैकजलदः कीर्तिनिधानां परां सौजन्यां बुजिनीविकासनारविः पापाद्रिभेदेपविः कारुण्यामृतवारिधेर्विलसनैराकाशशांकोपमो नित्यंसाधुजनोपकारकरणे व्यापार वद्धादरः ४५ येनाकारिजितारिनेमिभवनं देवाद्रिशृंगोधुरं चंचलांचन चारुदंडकलसश्रेणी प्रभा भास्वरं खेलत् खेचर सुंदरी श्रमभरभंजध्वनोद्दीजनै वंत्रेष्टापदशैल श्रृंगजि

॥१६॥ नभूत् प्रोद्दामसद्मश्रियं ४६ श्रीसीयकस्य भार्येद्वे

नाग श्रीमामगंभिधे आद्यायास्त्रयः पुत्रा द्वितीयायाः सुतद्वयम् ४७ पंचाचारपरायणात्ममतयः पंचांगमंत्रोज्वलाः पंचज्ञानविचारणा सुचतुराः पंचेंद्रियार्थोज्वलाः श्रीमत्पंचगुरुप्रणाममनसः पंचाणुशुद्धव्रताः पंचैतेतनयागृहस्थविनयाः श्रीसीयकश्रेष्ठिनः ४८ आद्यः श्रीनागदेवोभूल्लोलाकस्वोज्वलस्तथा महीधरोदेवधरोद्दावेतावन्यमातृजौ ४९ उज्वलस्यांगजन्मानौ श्रीमवल्लभ लक्ष्मणौ अभूतां भुवनोद्भासियशोदुर्लभ लक्ष्मणौ ५० गांभिर्यं जलधेः स्थिर

॥१७॥ त्वमचलात्तेज

स्विता भास्वतः सौम्यंचंद्रमसः शुचित्वममरस्रोतस्विनीतः परम् एकैकं परिग्रह्यविश्वविदितोयो वेधसासादरम् मन्येबीजकृतेकृतः सुकृतिनासल्लोलकः श्रेष्ठिनः ५१ अथागमन्मंदिरमेषकीर्तिः श्रीविंदमल्लोधनधान्यवल्ली त्रपालु — — — — — भ्यसुप्तकंचीन्नरेशंपुरतः स्थितः सः ५२ उवाचकस्त्वं किमिहाभ्युपेतः कुतः सतंप्राह फणीश्वरोहं पातालमूलात्तवदेशनाय श्रीपार्श्वनाथः स्वयमेष्यतीह ५३ प्रातस्तत्रसमुत्थायनकंचनवि

॥१८॥ वेचितं स्वप्नस्यांतर्मतो भावायतो वातादि दूषिताः ५४ लोला

कस्य प्रियास्तिस्रोबभूवुर्मनसः प्रिया ललिताकमल श्रीश्चलक्ष्मीर्लक्ष्मीसनाभयः ५५ ततः सभक्तांजलितां वभाषेगत्वा प्रियां तस्य निशि प्रसुप्तां प्रद्युम्नभद्रे-

धरणोहमेहि श्री — — — — — — — — शंयामि ५६ तयासचोक्तो
— — — — — — — — — — मद्देसत्यमेतत्तु श्रीपार्श्वनाथस्य
समुद्धृतिं स प्रासादमर्चिंचिकरिष्यतीह ५७ गत्वापुनर्मौलिकमेवमूचेभोभक्त-
सक्तानुगतातिरक्ताः देवेधनेधर्म विधौजिनेष्टौ श्रीरेवतीतीरमिहापपार्श्वः ५८
समुद्धरेनं कुरुधर्म का
॥१९॥ यैत्वकारय श्रीजिनचै
त्यनेहं येनास्यसि श्रीकुलकीर्त्तिपुत्रः पौत्रोरुसंतानसुखादि वृद्धिं ५९ त —
— — — मारव्यं वनमिहनिवासोजिनपतेस्त एवेतेग्रावाणाः शठकमठ-
मुक्तागगनतः सधारामे — — — — परयतः कुंडसरित। स्तदत्रेतत्स्नानं
— — — — गमं प्रापपरमं ६० अत्रास्त्युत्तममुत्तमादिशिपरं सार्द्धमंचो
स्थितं तीर्थं श्रीवरलाइकात्रपरमंदे वोऽति मुक्ताभिधः सत्यश्चात्रघटेश्वरः
सुरनतोदेवः कुमारेश्वरः सौभाग्येश्वर दक्षिणेश्वर सुरौ मार्कंडरिचेश्वरौ ६१
सत्योंबरेश्वरोदेवो त्र
॥२०॥ ब्रमहोश्वरावपि कुटिलेशः ॥२०॥ कर्करेशोयत्रास्ति कपिलेश्वरः ६२ महा-
नालमहाकाल — रथेश्वर संज्ञकाः श्रीत्रिपुष्करतांप्राप — रित्रिभुवनार्चि-
ताः ६३ कीर्त्तिनाथंचके — — — — — — मिस्वामिनः संगमोसःपटी-
सत्थमुखेश्वरघटेश्वरा ६४ नित्यप्रमोदितोदेवो सिद्धेश्वर गया युसः गंगाभेदेन
सोमेश गंगानाथ त्रिपुरांतकाः ६५ संस्ता त्रिकोटि लिंगानांयत्रास्ति कुटिला-
नदी स्वर्णजालेश्वरोदेवः समंकपिलधारया ६६ नाल्प
॥२१॥ मृत्युर्नवारोगा न दुर्भिक्षमवर्षणां यत्रदेवप्रभावेन
कलिपंकः प्रधर्षणां ६६ षण्मासेजायते यत्र शिवलिंगाः स्वयंभुवः तत्र कोटी-
श्वरेशान का श्लाघा क्रियतेमया ६७ इत्येवग — — — — — — — —
कर्त्तावर्त्तारक्रिया कर्त्ता पार्श्वजिनेश्वरोऽत्रकृपया सोयाद्यवासः पतेः शक्तैर्यै
क्रियिकश्रिय स्त्रिभुवन प्राणिप्रबोधं प्रभुः ६८ इत्याकर्ण्यवचोविभाव्यमनसा-
तस्योरगः स्वामिनः स प्रातप्रति वुध्यपार्श्वमभितः क्षोणीविदार्यक्षणा। ताव-
त्तत्रविभुंददर्श
॥२२॥ सहसान्यप्राहृता कारिणां कुंडाभ्यर्णतपवधानदधतं स्वायंभुवः
श्रिश्रियं ६९ नासीद्यत्रजिनेंद्रपादनमतंनो धर्मकर्मार्जनं नस्नानं नविलेपनं नच-
तपोध्यानं नदानार्चनं नोवासन् मुनि दर्शन — — — — — — — —
— — —७० तत्कुंडमध्यादथनिर्जगाम श्रीसीयकस्या गमनेनपद्मा श्रीक्षेत्र-
पालस्तदथांबिका च श्रीज्वालिनी श्रीधरणोरगेशः ७१ यदावतारमाकार्षी-
दत्र पार्श्वजिनेश्वरः तदानागहृदेयद्व गिरिस्तंबप्रपातसः ७२ यद्वोपदित्तवान्
स्वप्नं लघ्मण ब्रह्मचारि

॥२३॥ णः तत्राहमपियास्यामियत्र पार्श्वविभुर्मम ७३ रेवती
कुंडलीरेणया नारीस्नान माचरेत् सा पुत्र भर्तृ सौभाग्यं लक्ष्मींचलभते स्थिरं
७४ ब्राह्मण क्षत्रियो वापि वैश्यो वा शूद्र एव च अंत्यजो वापि स्नानं च
स कर्त्तात्युत्तमांगतिं ७५ धनं धान्यं — — — — धैर्यं धौरेयतांधियांधरा-
धिपति सन्मानं लक्ष्मीं चाप्नोति पुष्कलाम् ७६ तीर्थाश्चर्यमिदं जनेनविदितं
यद्गीयते सांप्रतं कुष्ट प्रेत पिशाच कुज्वररुजाद्दीनां गगंडापह्नं संन्यासंच
चकार निर्गतभयंद्यूकष्टमालीढयं काकीनाकमवाप देवकलया किं किं संपद्यते
७७ श्लाघ्यं जन्मकृतं धनंच सफलंनी

॥२४॥ ता प्रसिद्धिं मतिः
सद्धर्मोपि च दर्शितस्तनुरुह स्वप्नोर्पित सत्यतां — — — — रदृष्टि दूषि-
तमनाः सदृष्टिमार्गे कृतो जैन — — — — — — — तमा श्रीलोलकः
श्रेष्ठिनः ७८ किं मेरोः शृंगमेतत् किमुतहिमगिरेः कूट कोटि प्रकांडं
किंवा कैलाश कूटं किमथ सुरपतेः स्वर्विमानं विमानं इत्थं यत्तर्कतेस्म
प्रतिदिनममरैर्मर्त्त्यं राजोत्करैर्वामन्ये श्रीलोलकस्य त्रिभुवन भरणा दुच्छ्रितं
कीर्त्तिपुंजम् ७९ पवन सुतपताका पाणितो भव्यमुख्यान् पटुपटहनिनादा-
दाह्वयत्येषजैनः कलिकलुषमथेाचेदूरमु

॥२५॥ त्सारयेद्वा त्रिभुवन विभु — भा
मृत्यतिवालयोयं ८० — — स्थानकमाधरंति दधते काश्चिच्चगीतोत्सव का-
श्चिद्विप्रतिताल वंशललितं कुर्वंति नृत्यंचकाः काश्चिद्वाद्यमुपानयंति निहतं
वीणास्वरं काश्चन यः प्रोच्चैर्ध्वज किंकिणी युवतयः केषांमुदेनाभवन् ८१ यः
सद्वृत्तयुतः सुदीप्ति कलितस्था सादिदायोज्झितश्चिंताख्यानपदार्थदान चतुर-
श्चिंतामणेः सोदरः सोभूच्छ्रीजिनचंद्र सूरिसु गुरुस्तत्पादपंकेरुहे यो भृंगाय-
तपव लोलकवरस्तीर्थं चकारै

॥२६॥ षसः ८२ रेवत्याः सरितस्तटेतरु वरायत्राह्वयंते भृशं
शाखाबाहुलतोत्करैर्नर सुरान् पुंस्कोकिलानां रुतैः मत्पुष्पोच्चय पत्रसत्फल-
चयैरा निर्मलैर्वारिभि र्भोभोभ्यर्च्चयतां भिषेकयन वा श्रीपार्श्वनाथं प्रभुं ८३
यावत्पुष्कर तीर्थसैकत कुलं यावच्च गंगाजलं यावत्तारक चंद्र भास्कर करा
यावच्च दिक्कुंजराः यावच्छ्रीजिन चंद्रशासन मिदं यावन्महेंद्रं पदं तावत्तिष्ठ-
तुयः प्रशस्ति सहितं जैनं स्थिरं मंदिरं ८४ पूर्वतो रेवती सिंधुर्देवस्यापि पुरं
तथा दक्षिणस्यां मठस्थान मुदीच्यां कुंडमुत्तमं ८५ दक्षिणोत्तरतोवाटिनाना
वृक्षैरलं कृ

॥२७॥ ता का

रितं लोलिकेनैतत् समायतन संयुता ८६ श्रीमन्म — — र सिंहोभूद्गुण भद्रेण महामुनिः कृताप्रशस्तिरेषा च कवि — — — भूषणा ८७ नैगमान्वयकायस्थ कीर्तिगस्य च सूनुना लिखिता केशवेनेदं मुक्ता फलमिवोज्वला ८८ हरसिंह सूत्रधारोथ तत्पुत्रो पाल्हणोंभुवि तदंगजे माहडेनापि निर्मितंजिन मंदिरं ८९ नानिग पुत्र गोविंद पाल्हण सुतदेल्हणौ उत्कीर्णा प्रशस्तिरेषा कीर्त्तिस्तंभं प्रतिष्ठितं ९० प्रसिद्धि मगमदेवकाले विक्रम भास्वतः षट्त्रिंश द्वादशशते फाल्गुने कृष्ण प

॥२८॥ क्षे ९१

तृतीयायां तिथौ वारे गुरौ तारे च हस्तके वृद्धिनाम नियोगे च करणेतैतले तथा ९२ संवत् १२२६ फाल्गुनविद ३ कामारेवणाग्रामयोरंतराले गुहिल पुत्ररादाम्बर महंघणसींहाभ्यां दत्तक्षेत्र डोहली १ खडुवरा ग्रामवास्तव्य गौडसौनीग वासुदेवाभ्यां दत्तडोहलिका १ आंतरी प्रतिगणकेरायता ग्रामीय महंतणी बडीयोपलीभ्यां दत्तकूडो डोहलिका १ बडोवाग्रामवास्तव्यपारिग्रही आल्हणेन दत्तक्षेत्र डोहलिका १ लघुविक्रौलीग्राम संगुहिल पुत्रए० प्राहर महंतममा

॥२९॥ हवा

भ्यां दत्तक्षेत्र डोहलिका १ बहुभिर्वसुधामुक्ता राजाभिर्भरतादयः यस्य यस्य यदाभूमिस्तस्य तस्य तदाफलं १

II.

Text.

॥ मेनालगागढमेमेलधराउवारणाराज्यमेदरवाजाऊपरेथांबामे ॐनमः शिवाय-मालवेशगतवत्सरशतैः द्वादशैश्चषट्विंशपूर्वकैः कारितंमठमनुत्तमंकलौभावब्रह्ममुनिनामनह्वयम् तस्मात्सत्यमयः सुभाषितमयः कंदर्प्पशोभामयः स्वस्वद्धर्म्मैमय कुलाकुलमयः कल्याणमालामयः धर्म्मैक्षंचमकल्मषंकृतधियं श्रीचाहमान्यान्वयं सांप्रश्याधिपसुंदरोवनिपतिः श्रीप्रथ्वीराजोभव तस्मैधर्म्मैवरिष्ठस्य पृथ्वीराजस्य धीमतः पुन्येकुर्वतिवैराज्येनिष्पन्नंमवमुत्तमं

III.

Text.

पुलाकेनीहेतलेटीकादरवाजाम्हुं आठामाकोठामे प्रशस्तिपश्चिमकीफेटमे ओलां२

॥१॥ संवत् १३२४ वर्षेद्यहचित्रकूटमाहादुर्गे तलहट्टिकायांपवित्र श्रीचैत्रगणद्यागांगणतरणि स्वप्रपितामह प्रभु श्रीहेमप्रभसूरिभिः वेशितस्य स्वविहित

शिरोमणिसिद्धांतसिंधुभट्टारक श्रीपद्म च सूरिप्रतिष्ठितस्यास्यदेव श्रीमहावीरवैतस्य प्रतिभासमुद्र क

॥२॥ विकुंजरः पितृतुल्यानुचवात्सल्य ॥ प्रव्य श्रीरत्नप्रभव सूरिणामादेशात् राज भगवन्नारायण महाराज श्रीतेजः सिंहदेवकल्याण विजयी राजा विद्यमान प्रधान राज राज पुत्रकांगापुत्र परनादि साह

IV.

Text.

पुलाका ९ कोठामे पूर्वकीफेटमें

— — — — — — स्फुत्तदुद्धाविनां भूपाः श्रीगुहिलान्वय प्रधवत्वाप्नाद्यजन्मक्रमा ५ हच्छ सच्छात

पुर पुल प्रावपा

सिंहदेवः तत्सूधं पुण्यपद्मं पाताभिनवरुक्मांगदहव श्रीसमर सिंहदेवः तेन श्रीसमरसिंहेनक्तकाय जनद्याश्रेयसे — — — — — — — — — — — — भर्तृपुरीयगच्छे श्रीसामला — रगच्छाचार्याणां—पधशालायां स्वभूमीदीयतेमम गच्छा श्रीजयतल्लदे व्यासाध्वी सुमतोपदे शेनकूर्म्मं प्रविकल्पय — — — — — — — — — — — — — — वधिप्रासादोद्धकारि ध्यात्मियाकुकुंजन्या प्रति — दितस्य मूलद्वारे प्रवेसेवामदक्षाणां विभागेद्देहट्टेददात् उत्तरस्यां दिशिउपनदं लच्छावर्त्तस्या वाटिकाविनायक समयानापीच्चचस्यां तेावाटिकायां भूमि ध्यदात् तथाच श्रीचित्रकूट तलहट्टिकायां — — — — — — — — — — — सज्जपुरमंडपिकायां बूढाडूंगसमंडपिकायां ध्यासुचतुर्षु मंडपिकासु प्रत्येकं षठकडीयाद्रम्म २४ चतुरविंशति ४ दीयंते — — — — — स्मादेवजगति मध्यवर्त्तिसिंहनाद क्षेत्रपालयेाग्यं श्रीचित्रकूट तलहट्टिकायां मंडपिकायां द्रम्म — — — — च कपिल कूपाचा गतायाः सारदायायेाग्यं द्रम्म १४ चतुकडो ध्यघाट मंडपिकायांतु श्रीपद्मवत्ययेाग्यं च उकडिया द्रम्म १६ षोडशसज्जन पुर मंडपिकायां भवि — — — — — — राजा श्रीसमरसिंह — — — — सेवन

पुलाका ९ कोठामे ध्यदारजोडे संवत् १२ २ जेष्ठसुदि १२ श्रीभुवन चंद्र सूरि श्रेयसे गटीकायुग्मदत्त श्री

V.

Text.

नोकोठाके पाछेमेलाका चोकमे गड्यो थाबो नीकल्यो जीरा

संवत् १३ ३५ वर्षे वैशाख शुदि ५ गुरौ श्रीएकलिंगहराराधनपाशुपतवा यहारीतराशिहचिय गुहिलपुत्र — — — हलध सहोदर्यंच श्रीचूडामणीय भर्तृस्थानोद्भव द्विजाशवि भागातुच्छे श्रीभर्तृपुरीयगच्छे श्रीचूडामणौ भर्तृपुरे श्रीगुहिल पुत्र विहार आदेश प्रतिपतौ श्रीचित्रकूट ममेदपाटाधिपति श्रीतेजसिंहराज्ञा श्रीजयतल्लदेव्या श्रीश्यामपार्श्वनाथसही स्वश्रेयसेकारिता तद्वाछीवसही पाश्चात्यभागे — — — गच्छीय श्रीप्रद्युम्नसूरिभ्यो महाराज कुलगुहिलपुत्र वंशतिलक श्रीसमरसिंहेन चतुराघाटोपे तायदान युताचमठभूमे — — — घाटाः पूर्वोत्तरयोर्ज्योतिः साढलस्यावासः दक्षिणस्यां श्रीसोमनाथः पश्चिमायां श्रीभर्तृपुरगच्छीयचतुर्विंशति जिन — — — लयोराज्ञी वसहिकाच अन्यचात्रदानानि श्रीचित्रकूट तलहट्टिका मंडपिकायां च उद्रम्मा २४ तथा उत्तरायनेघृतकर्ष १४ तथा तैलकर्ष ६ आघाट मंडपिकायां द्रम्मा २६ घोहर मंडपिकायाः द्रम्मा ३२ सज्जनपुर मंडपिकायांद्रं. ३४ अमून्यत्रदानानि दत्तानि श्रीएकलिंग शिवसेवनतत्पर श्रीहारीतराशि वंश संभूतमहेश्वरराशितच्छिष्य श्रीशिवराशि गौडजातीय द्विजदिवाकर वंशोद्भव व्यासरत्न सुतद्योतिः साढलतस्याचविप्रदेल्हण सुतभट्टसाढासत्पुत्र हारभट्टखौं मटसद्भर्तुंभीमासहितेन एभिर्मिलित्वा श्रीभर्तृपुरीयगच्छे — — — — कारि ॥

VI.

Text.

आबू पर्वत उपर अचलगढनी पासे अचलेश्वर माहादेवनुं मंदिरछे तेनी पासे ना मठनी अंदरना शिलालेखनुं अक्षरांतर

॥१॥ उः ॥ ॐनमः शिवाय ॥ ध्यानानंदपराः सुराः कति कति ब्रह्मादयो ऽपि
स्वसंवेद्यं यस्य महः स्वभावविशदं किंचिद्विदां कुर्व्वते । मायामुक्तवपुः स्वसंगत-
भवाऽभावप्रदः प्रीतितो लोकाना मचलेश्वरः स दिशतु श्रेयः प्र

॥२॥ भुः प्रत्यहं ॥१॥ सर्गार्थं स्वतनुं कृताश मनिशं पद्मासने जुह्वतः प्राणैः प्राजनि
नीललोहितवपु र्यो विश्वमूर्तेः पुरादुष्टां शुष्टनखांकुरेण हठत स्तेजोमयं पंचमं
च्छिन्नं धातृशिरः करां बुजतले विभ्रत्स वस्त्रा

॥३॥ यतां ॥२॥ अव्यक्ताक्षरनिर्भरध्वनिजप स्त्यक्तान्यकर्म्मश्रमः संदेहात्स्वितिमान
मुज्झितुमना दानांबुसंबर्धितः । यत्नं भाचलगस्तपांसि वितनो त्यद्यापि भंग-
शजः प्रत्यूहापगमोन्नति र्गजमुखोदेवः स वोऽस्तु श्रिये

॥४॥ ॥३॥ किंच ॥ क्षुभ्यद्वारिधिदीर्यमाण शिखरिश्रेणिभ्रम द्भूतलं त्रुट्यद्व्योमदि
गंतसंहति पतद्ब्रह्मांड भांडस्थिति कल्पांतस्य विपर्ययेऽपि जगता मुद्वेग मुच्चै
र्दिंश त्सिंधो र्लंघन मद्भुतं हनुमतः पाया दपाया त्सनः ॥४॥ शाखेव शाखा
॥५॥ कुलितः सुपर्व्वा गुणोचितः पत्रविभूषितांशः कृतास्पदो मूर्द्धनि भूधराणां जय
त्युदारो गुहिलस्य वंशः ॥५॥ यद्वंशो गुहिलस्य राजभगवन्नारायणः कीर्त्यते त
त्सत्यं कथ मन्यथा नृपतय स्तांसंश्रयंते परां मुक्तेः कल्पितवेत
॥६॥ सेः करतलव्यासक्तदंडोज्ज्वलाः प्राणत्राणधियः श्रियः समुदयै र्न्यस्तापहस्ता
सदा ॥६॥ मेदः क्षोदभरेण दुर्ज्जनजनस्याशान्वितः संगरे देशः क्लेशकथापकर्षण
पटुर्यो बप्पकेनो चकैः । लावण्योत्करनीर्जितामरपु
॥७॥ रः श्रीमेदपाटाभिधा माधत्ते स्मस एष शेषनगर श्रीगर्गसर्व्वं कषः ॥७॥ अस्ति
नागह्रदं नाम सायाम मिह पत्तनं ॥ चक्रे तपांसि हारीतराशि र्यत्र तपो-
धनः ॥८॥ केपि क्वापि परप्रभावजनितैः पुण्यै र्हविर्भि र्विभुं प्रीणंति ज्वलनं
हिता
॥८॥ य जगतां प्रारब्धयागक्रमाः । अन्ये प्राणनिरोध बोधितसुखाः पश्यंति चा-
त्मस्थितं विश्वं सद्विजनस्थलीषु मुनयो यत्रा प्रतत्वोदयाः ॥९॥ अस्मिन्नेव वने
तपस्विनि जने प्रायः स्खलद्बंधने वृत्तांतं भुवनस्य योगनियतः प्रत्यक्षतः
पश्यति । हा
॥९॥ रीतः शिवसंग मंगविगमा त्प्राप्तः स्वसेवाकृते बप्पाय प्रथिताय सिद्धिनिलयो
राज्यश्रियं दत्तवान ॥१०॥ हारीता त्किल बप्पकोऽङ्घ्रिवलयव्याजेन लेभेमहः
क्षात्रं धातृनिभा द्वितीर्य मुनये ब्राह्मं स्वसेवाकृ
॥१०॥ तात् । एते द्यापि महीभुजः क्षितितले तद्वंशसं भूतयः शोभंते सुतरा
मुपात्तवपुषः क्षात्रा हि धर्म्मा इव ॥११॥ बप्पकस्य तनयो नयनेता संबभूव
नृपति र्गुहिलाख्यः । यस्य नामकलितां किल जातिं
॥११॥ भूभुजो दधति तत्कुलजाताः ॥१२॥ यत्पीयूषमयूष सुंदरमतिर्विद्या सुधालं-
कृतिर्निः प्रत्यूहविनिर्जितस्मरगतिः प्राकाम्यरम्याकृतिः । गांभीर्योन्नतिसंभृतस्य
जलधेर्विस्फोटिताहंकृति स्तस्मा द्भोज
॥१२॥ नरेश्वरः स समभू त्संसेवित श्रीपतिः ॥१३॥ शीलः सलील करवालकराल-
पाणि र्भेजे भूजेन तदनु प्रतिपक्षलक्ष्मी । उत्साहभावगमकं पुलकं दधानो वीरः
स्वयं रस इव स्फुटबद्धदेहः ॥१४॥ चोडस्मीर
॥१३॥ तिखंडनःकलनृपश्रेणी शिरोमंडनः कर्णाटेश्वर दंडनः प्रभुकला मैत्रीमनो-
नंदनः । तत्सूनु र्नयमर्म्मनर्म्मशचिवः श्रीकालभोजः क्षमापालः कालकरालकर्कश
धनुर्दंडप्रचंडो जनि ॥१५॥ क्वाया

॥१४॥ भि र्वनिताः फलैः सुमनसः सत्पत्रपुंजैर्द्दिशः शाखाभि र्द्दिजवर्ग मर्गलभुजः
कुर्व्वन् मुदा मास्पदं ॥ तद्वंशः प्रबलां कुरो तिरुचिरः प्रादुर्बभूवा वनीपालो
त्कटभट क्षितिविस्टपतरो र्गव्वा भिहर्त्तातत ॥१६॥ मुच्छिष्ट

॥१५॥ मेयमध्यः कपाटवक्षस्थल स्तदनु। सिंह स्त्रासित भूधरमत्तेभो भूपति
र्जयति ॥१७॥ तज्जन्मास महायिकः स्वभुजयोः प्राप्तैकसा हायिकः क्षोणी भार
मुदार मन्नत शिरा धत्ते स्म भोगीश्वरः यस्मो

॥१६॥ धानल विस्फुलिंगमहसि प्रत्यर्थिनोऽनर्थिनः प्रांचत्यक्षपरीग्रहा कुलधियः
पेतुः पतंगा इव ॥१८॥ घुंमाणस्य ततः प्रयाणविधतिक्षोणीरजो दुर्द्दिने निस्त्रिं
शांबुधरः शिषेच सुभटान् धारा

॥१७॥ जलै रुज्वलैः। तन्नारीकुचकुं कुमानि जगलु श्चित्राणि नेत्रांजनै रित्याश्चर्य
महो मन स्तु सुधिया मद्यापि विस्फूर्जति ॥१९॥ अल्लटो जनि ततः क्षितिपालः
संगरे नुहत दुर्जयकालः। यस्य वैरिष्ट

॥१८॥ तनां करवालः क्रीडयै व जयति स्म करालः ॥२०॥ उदयति स्मततो नरवद्द
हनः समिति संहृतभूपतिवाहनः विनय संचयसेवित शंकरः सकलवैरिजनस्य
भयंकरः ॥२१॥ विक्रमविधूतविश्वप्रतिभ

॥१९॥ टनीते स्तथा गुणस्फीतेः। कीर्त्तिं स्तारकजैत्री शक्ति कुमा रस्यसंजज्ञे
॥२२॥ आसी त्ततो नरपतिः शुचि वर्म्मनामा युद्धप्रदेशरिपुरदर्शितचंडधामा।
उच्चै र्महीधरशिरः सु निवेशिताङ्घ्रेः शंभो

॥२०॥ र्विशाख इव विक्रमसंभृतश्रीः ॥२३॥ स्वर्ल्लोके शुचिवर्म्मणि स्वसुहृतः पौरंदरं
विभ्रमं बिभ्राणे कलकंठकिन्नरवधूसंगीतदोर्विक्रमे। माद्यन्मारविकारवैरित-
रुणोगं डस्थलीपांडुरै र्ब्रह्मांडं न

॥२१॥ रवर्म्मणा धवलितं शुभ्रै र्यशोभि स्ततः २४ जाते सुरस्त्री परिरंभसौख्यस-
मुत्सुके श्रीनरवर्म्मदेवे ररक्ष भूमी मथकीर्त्तिवर्म्मा नरेश्वरः शक्रसमानधर्म्मा
॥२५॥ कामक्षामनिका मतापिनि तपेऽमु.

॥२२॥ ष्मि न्नृपेरागिणि स्वः सिंधो र्ज्जलसंप्लुते रमयति स्वर्ल्लोक वामभ्रुवः। दोर्दंड-
द्वयभग्नवैरिवसतिः क्षोणीश्वरो वैरटश्चक्रे विक्रमतः स्वपीठविलुठन्मूर्द्ध स्थिरं
द्वेषिणः ॥२६॥ तस्मि न्नृपरते राज्ञि मुदिताशेषविद्विषि। वैरिसिं

॥२३॥ हस्तत श्चक्रे निजं नामा र्थव द्भुवि ॥२७॥ व्यूढोरस्क स्तनुर्मध्ये क्ष्वेडाकंपित
भूधरः। विजयोपपदः सिंह स्ततो रिकरिणोऽवधीत् ॥२८॥ यन्मुक्तां हृदयांग-
रागसहितं गौरत्व मेत द्विषन्नारीभि र्विरहा त्ततोऽपि समभूत् किं कर्णिका

॥२४॥ रक्रमः ॥ धत्ते यत्कुसुमं तदीय मुचितं रक्तत्व माभ्यंतरे बाह्ये पिंजरतां
चकारगुणग्रामोपसंवर्गणां ॥२९॥ ततः प्रतापानल दग्धवैरिक्षितीशधूमो क्षम
१सोरसेन न्टपो रिसिंहः सकलासु दिक्षु लिलेख वीरः स्वयशः प्रशस्तिं

॥२५॥ ॥३० लोचनेषु सुमनस्तरुणीना मंजनानि दिशता यदनेन वारि कल्पित
मही रवत चित्रं कज्जलं ह्यत मरातिवधूनां ॥३१॥ नृपोत्तमां गोपलकांति कूट
प्रकाशिताष्टापदपादपीठः। अभूदमुष्मा दथ चोडनामा नरेश्व
॥२६॥ रः सूर्यसमानधामा ॥३२॥ कुंभिकुंभविलुठत्करवालः संगरे विमुखनिर्मित-
कालः। तस्य सूनु रथ विक्रमसिंहो वैरि विक्रमकथां निरमाद्दत् ॥३३॥ भुज-
वीर्यविलासेन समस्तो हृतकंटकः। चक्रे भुवि ततः क्षेम क्षे
॥२७॥ मसिंहो नरेश्वरः ॥३४॥ रक्तं किंचि न्निपिय प्रमदपरिस्खलत्पादविन्यास-
मुग्धाः कांतेभ्यः प्रेतवध्वो ददति रसभरोद्गारमुद्रा कपालैः। पायं पायं त
दुच्चै र्मुदितसहचरीहस्तविन्यस्तपात्रं प्रीता स्ते ते पिशा
॥२८॥ चाः समरभुवि यशो यस्य संव्याहरंति ॥३५॥ सामंतसिंह नामा कामा-
धिकसर्वसुंदरशरीरः। भूपालो जनि तस्मा दपहृतसामंत सर्वस्वः ॥३६॥ खोमाण-
संततिवियोगविलक्षलक्ष्मीं सेना मदृ
॥२९॥ ष्टविरहां गुहिलान्वयस्य। राजन्वतीं वसुमती मकरो त्कुमारसिंह स्ततो
रिपुगता मपहृत्य भूयः ॥३७॥ नामा पि यस्य जिष्णोः परबलमथनेन सान्वयं
जज्ञे विक्रमविनीतशत्रु र्नृपति रभून्मथनसिं
॥३०॥ हो ऽथ ॥३८॥ कोशस्थितिः प्रतिभटक्षतजं न भुंक्ते कोशं न वैरिरुधिराणि
निपीयमानः। संग्रामसीमनि पुनः परिरभ्य यस्य पाणिं द्विसंश्रय मवाप फलं
कृपाणः ॥३९॥ शेषनिः शेषसारेण पद्म
॥३१॥ सिंहेन भूभुजा। मेदपाटमही पश्चा त्पालिता लालिता पि च ॥४०॥ स्यादी-
र्णवैरिमदसिंधुरकुंभकूट निष्ठूतमौक्तिकमणिस्फुटवर्ण भाजः। युद्धप्रदेशफलि-
कासु समुल्लिलेख विदानयं स्वभुजवीररसप्र
॥३२॥ बंधान् ॥४१॥ नडूलमूलं कखबाऊलक्ष्मी स्तुरुष्कसैन्यार्णव कुंभयोनिः। अस्मिन्
सुराधीशसहासनस्थे ररक्ष भूमी मथ जैत्रसिंहः ॥४२॥ अद्यापि संधकचमूरु-
धिरा वमत्तसंघूर्णमान रमणीपरिरंभणेन श्रा
॥३३॥ नंद मंद मनसः समरेपिशाचाः श्रीजैत्रसिंह भुजविक्रम मुद्गृणंति ॥४२॥
धवलयति स्म यशोभिः पुण्ये र्भूमंडलं तद मुं। विहिता हितभ्रंश शंक स्तेजः
संहो निरातंकः ॥४४॥ उग्रं
॥३४॥ मौक्तिकबीज मुत्तमभुवि त्यागस्य दानांबुभिः सिक्त्वा सद्गुरुसा धनेन नितरा
मादाय पुण्यं फलं। राज्ञाऽनेन कृपाणकोटि मटता स्वैरं विगाह्य श्रियः पश्चा
त्क्षेपि विवर्द्धिता दिशि दिशि
॥३५॥ स्फारा यशोराशयः ॥४५॥ व्याघ्रक्रोडवपुः कृपाणविलसद्दंष्ट्रां कुरोयः क्षमा
न्मग्ना मुद्धरति स्म गुर्जरमही मुच्चै स्तुरुष्कार्णवात्। तेजः सिंहसुतः स एष
समरः क्षोणीश्वरग्रामणी राधत्ते बलिकर्णयो र्धु

॥३६॥ र मिलागोले वदान्योऽधुना ॥४६॥ तालीभिः स्फुटतूर्यतालरचना संजीवनीभिः
करद्वंद्वोपात्तकबंध मुग्धशिरस संनर्त्तयंतः प्रियाः। अद्याप्य मदराघसा
स्तवयशः खंडं प्रतिछंदशो गायंति प्रति

॥३७॥ पत्तशोणितमदा स्तेजस्विसिंहात्मज ॥४७॥ अप्रमेयगुणगुं फकोटिभि र्गाढबद्धदृढविग्रहाकृतेः। कीर्त्यतेन सकला तवस्तुति ग्रंथगौरवभयान्नरेश्वर ॥४८॥
अर्बुदो विजयते गिरिरु

॥३८॥ चै र्देवसेवितकुलाचलरत्नं। यत्र षोडशविकारविपाकैरुज्झितोऽस्तत तपांसि
वसिष्ठः ॥४९॥ क्लेशावेशविमुग्धदांत जनयोः सद्भुक्तिमुक्तिप्रदे लक्ष्मीवेश्मनि
पुण्यजह्नुतनयासं

॥३९॥ सर्गपूतात्मनि । प्राप प्रागचलेश्वरत्व मचले यस्मिन् भवानीपति र्विश्वव्याप्तिविभाव्यसर्वगतया देव स्थलोपि प्रभुः ॥५०॥ सर्वं सौंदर्यसारस्य कोऽपि पुंज इवाद्भुतः। अयं यत्र

॥४०॥ मठ स्तिष्ठ त्यनादि स्तापसोचितः ॥५१॥ यत्र क्वापि तपस्विनः सुचरिताः
कुत्रापि मर्त्याः क्वचि द्गीर्वाणाः परमात्मनिर्वृति मिव प्राप्ताः क्षणेषु त्रिषु।
यस्या षोद्गति मर्बुदेन सहितां गायं

॥४१॥ ति पौराणि काः संधत्ते स खलु क्षणत्रयमिषा त्रैलोक्यलक्ष्मीमिह ॥५२॥
जीर्णोद्धार मकारय न्मठ मिमं भूमीश्वरग्रामणी र्देवः श्रीसमरः स्वभाग्यविभवादिष्टो निजश्रेयसे। किंचास्मि

॥४२॥ न्मर मालिको नरपति श्चक्रे वसुभ्यः कृपासंश्लिष्टः शुभभोजनस्थिति मपि
प्रीत्या मुनिभ्य स्ततः ॥५३॥ अचलेशदंडमुच्चैः सौवर्णं समरभूपालः। आयु
र्वायु चलाचल मिह दृष्ट्वा कारयामास ॥५४॥

॥४३॥ आसीद्भावाग्निनामेह स्थानाधीशः पुरा मठे हेलोन्मूलित संसारबीजः
पाशुपतै र्वृत्तैः ॥५५॥ अन्योन्यवैरविरहेण विशुद्ध देहाः स्नेहानुबंधिहृदया
सदया जनेषु। अस्मिन् तपस्यति मृगें

॥४४॥ द्रगजादयो पि सत्वाः समीहितविमोक्षविधायितत्वाः ॥५६॥ शिष्य स्तस्या
यमधुना नैष्ठिको भावशंकरः। शिवसायोज्यलाभाय कुरुते दुष्करं तपः ॥५७॥
फलकुसुमसमृद्धिं

॥४५॥ सर्वकालं वहंतः परमनियमनिष्ठां यस्य भूमीरुहो ऽमी अपरमुनिजनेषु
प्रायशः सूचयंति स्खलितविषयवृत्तेरर्बुदाद्रि प्रसूताः ॥५८॥ राज्ञा समरसिंहेन भावशंकरशासनात्।

॥४६॥ मठः सौवर्णदंडेन सहितः कारितोऽर्बुदे ॥५९॥ यो ऽकार्षी
देकलिंगत्रिभुवन विदित श्रीसमा धीशचक्रस्वामि प्रासादवृंदे प्रियपटुतनयो
वेदशर्म्मा

|४७|| प्रशस्तोः । तेनै षा पि व्यधायि स्फुटगुणविशदा नागरज्ञाति भाजा विप्रेण शेषविद्वज्जनहृदयहरा चित्रकूटस्थितेन ॥६८॥ याव दर्बुदमही धरसंगं संबिभर्त्ति भगवा

||४८|| न चलेशः । ताव देव पठता मुपजीव्या सत्प्रशस्ति रिय मस्त कवीनां ॥६१॥ लिखिता शुभ्रचंद्रेण प्रशस्ति रिय मुज्वला उत् कीर्णा कर्मसिंहेन सूत्रधारेण धीमता । ६२॥

सं १३ ४२ वर्षे मार्गशुदि १ प्रशस्तिः कृता ।

APPENDIX.

I.

Translation.

॥ श्रीपार्श्वनाथ जीका कुंड सूं उत्तर तरफ कोट नखे मह्लडी नीचला चत्तर गाम बोभोली मे

वीत रागसे नमस्कार चैतन्यरूप स्वयंप्रकाश आद्यन्तरहित केवलज्ञानाभ्याससे प्राप्तहोनेवाला नित्य प्रकाशमान जिससे दूसरे जीवोंके ज्ञानादिक प्रकाशितहोते हैं स्यात् शब्दसे बोधित सत्तामात्रस्वरूप सबसे संबन्धरखनेवाला परम आश्चर्य्य वाला कल्याण सुख आनन्दकास्थान सदावर्त्तमान ऐसें उस आत्मामें विद्यमानतेजको मैं नमस्कारकरताहूं उस्की स्तुति करताहूं ॥१॥

जोकभी अस्त नहींहोता पापग्रहों में जिस्की गणना नही है जिस्का तेज असह्य नही है

जिस्का देह दुष्ट नहीं है ऐसा वह धर्म्मरूप अपूर्व्व सूर्य्य तुम्हारे आनन्दके वास्ते हो ॥२॥

जिस विभूका प्रकाशमान नखकी कांतिवाला कर युग पुत्रादिक विभवोंके धारणकरनेवाले विनम्र इनसब भाग्यवान पुरुषों की बहुत मंगल परिपूर्णलक्ष्मीको स्थिर करने के लिये उपरचित बनाया है रचनाविशेष जिसमें ऐसी व्रजकी भूमिके समान शोभता है वह श्रीशान्तिनाथ ऊंचा ॥३॥

नेमिनाथ जो जैनियोंका २२ वा तीर्थङ्कर था वह द्वारिकामे श्रीकृष्णके घर गया उनके बजानेका शंख जो दूसरेसे नही बजसक्ता था बजाया उनके शार्ङ्ग धनुषको अङ्गुलीमें घुमाया ऐसी जैनियों की कथा है

नासासे श्वास लेते हुए जिस अधिक बलवालेने पांचजन्य शंखको बजाया
हाथके अंगूठेसे विष्णुके बहुतभारी शार्ङ्ग नामक धनुषको
बलदेवजीके समान पूरा चढाकर अंगुलीसे घुमाया उस नेमि को नमस्कार करताहूं ॥ ४ ॥

जिस्की व्याख्यान देने की भूमिको सब प्राणी यह क्या है इस कौतुकसे देखते हैं वह तीर्थंकर आचार्य्य पार्श्वनाथ जय को प्राप्तहो जिस व्याख्यान भूमिके उच्च कोटके चौतरफ देवताओंके स्वामियोंके समूहसे अवकाश खालीस्थान नहीं रहा उस व्याख्यान भूमिके चारोतरफ ध्वजादंडकी किंकिणी सूर्य्यकांतिमणि चमकती हैं शब्दकरती है ॥ ५ ॥

इस श्लोकमें कवि अपनी काव्यकुशलता दिखलाता है इसलिये दुबारा एकपद कहा जिस्से अर्थका श्लेष है। महावीरस्वामी २४ वें तीर्थंकर का वर्णन इस श्लोकमें है वीरोमें बढतेहुए महावीर स्वामीका बढताहुआ महोदय अर्थात् स्थापनोत्सव बढतारहो ॥ ६ ॥

बलको देनेवाली सारांशको देनेमे चतुर दौलतको देने वाली और वृत्तिरूप भक्तोंको भोग मोक्ष देनेमें प्रवीण ऐसी सरस्वतीका स्तवन करताहूं ॥ ७ ॥

कवितामें चार वृत्ति हैं अर्थात् रचना भेद है १ कैशिकी २ सात्वती ३ भारती ४ आरभटी।

निरंतर तपस्या करनेवाले स्वतंत्र श्री नाभेयादि अत्यन्त कृपारूपी अमृतके समुद्र ऐसे स्वामियोंको निर्विघ्न हम उपासना करते हैं जिनके प्रकाशके उत्तमभागके पात्र होनेसे मुक्तिको पायेहुए पुरुष मुक्तिरूपी स्त्रीके स्तनोंपर हार रूप होकर रहते हैं ॥ ८ ॥

जैनोंके २४ तीर्थङ्कर भव्य अर्थात् विनीत या अच्छे पुरुषोंके हृदयानंदका स्थान सद्धर्म्मका आधार जन्म मरण देनेवाले कर्मोंका नाशकरनेवाले शुभकी पंक्ति वे रोक टोक ज्ञानको धारणकरनेवाले जीवोंके उपकारकरनेमे प्रीतिरखनेवाले कल्याणरूपीलक्ष्मीके उत्पत्तिस्थान संसारको पालन करनेवाले अच्छीमतिको-शुभकर्मोंमे देव ॥ ९ ॥

२४ तीर्थंकर के नाम

१ ऋषभनाथ
२ अजीतनाथ
३ शंभूनाथ
४ अभिनंदनजी
५ सुमतिनाथजी

६ पद्मप्रभूजी
७ पार्श्वनाथजी
८ चंदाप्रभूजी
९ सुबुधनाथजी
१० शीतलनाथजी
११ श्रेयांशनाथजी
१२ वासुपूज्यजी
१३ विमलनाथजी
१४ अनन्तनाथजी
१५ धर्म्मनाथजी
१६ शांतिनाथजी
१७ कुंथनाथजी
१८ अरुनाथजी
१९ मल्लिनाथजी
२० मुनिसुव्रतस्वामी
२१ नेमिनाथजी
२२ अरष्ट नेमिनाथजी
२३ पार्श्वनाथजी
२४ महावीरस्वामी

अथवंशवर्णनं

श्री चौहान वंशमें प्रथमोत्पन्न अपूर्व जडावतह* नामक ऊआ बढनेवाला न्टपों के भेदोंको जाननेवाला जिस्के सब काम सफल और सैन्यादि बलकरके युक्त और जो किसीके साम्हने नही झुका ॥१०॥

लावण्य सौन्दर्य्य का स्थान मलरहित तेजयुक्त पुष्पमाला सदृश शरीर वाली स्वच्छ उछलते ऊए पवित्रजलके समान वस्त्र धारणाकरनेवाली ऊंचे पर्व्वतों के समान जो स्तन उनके भारसे झुकीऊई शाकम्बरा देवी विष्णुकी लक्ष्मीके समान ऊई ॥११॥

पहिले अहिक्षेत्रपुर मे विप्र श्रीवत्स गोत्रमें असंख्यसामन्त या वीर रूपी वृक्षोंसे भरा ऊआ क्यारा थावला ऐसा पूर्णतल्ल सामन्त राजा ऊआ ॥१२॥

उस राजासे जयराज विग्रहराज चन्द्र उससे पर दुर्लभ राज गुर्वक शशिन्टप गूवाक सचन्दन वप्पय राज ऊए जिन्होने विंध्यामे राज किया श्रीसिंहराव और विग्रह दुर्लभ गुन्दू वाक् पति उस्का छोटाभाई श्रीवीर्य्य राम ॥१३॥

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* Var: lect: चन्द्र.

श्रीचंड उस्के बाद राणकमें श्रेष्ठ श्रीसिंहसे दूसल उस्का भाई वीसल राज देवीका पति वीसलके पृथ्वी राज रासल्य देवीका पति उस्का बेटा जयदेव सौमल्य देवी का पति ॥१४॥

पधिंगमिचल उपनामक यशोराज से आदिलेकर ३ राजाओंको मारकर जल्दी संग्रामभूमिमे जीतकर सोल्हण दण्ड नायकको जमराजके मुंहके समान गुफावाले किलेमे हथकडियां डालकर बेखटके अपनी इच्छाके अनुसार जीता हुआ कैद कर दिया ॥१५॥

इस्का पुत्र अर्णोराज हुआ वह कैसा है धारण किया है हृदयमे हरिको जिसने सत्व अर्थात् पराक्रमका स्थान इच्छा की गई है सीमा जिस्की गंभीरता और उदारता करके श्रेष्ठ दूसरों से नही पायागया है मध्य याबीच जिस्का ऐसावह नदियों का स्वामी आर्थात् अर्णोराज हुआ परन्तु आश्चर्य यह है कि भगवानके रहनेके स्थान दोनो हैं परंतु यहसमुद्रके समान न कीचड का कारण न मथनेके योग्य न श्रीसे अलग इसने दोषाकर चांद को नही बनाया और द्विजिह्व सर्प अथवा कपटियों से सेव्यनही ॥१६॥

जिसराजा के अंकुस से कुशवारणदेश आधीन किया गया या जिस्का राज्य पापरूपीहस्ती से रहित हुआ यहां यह बात आश्चर्यनही है फिर उस्के विषयमे जो आश्चर्यकि हमको मालूम होता है वह ऐसा मानते हैं पुण्यवत्तामें मोक्ष नारायण दोनोके प्राप्तन्यूनता करनेसे इंद्रकी प्रतिष्ठा भंगकी गई ॥१७॥

उस अर्णो राजसे भूमंडल को प्रकाशकरनेवाला विग्रहराज नामक राजा हुआ इस बातमें आश्चर्य नही है परंतु यह आश्चर्य है कि उस अर्णो राज समुद्रका पुत्र चंद्र जड (मूर्ख) है क्षीणहोता है और कलंक सहित है १८

जिस्के हाथमें लिया हुआ भयङ्कर खड्ग उस्के हाथकी शोभा धारणकरता हुआ प्रतिघातपाने या हनन करनेसे शोभायमान ऐसा खड़्ग मतवाले उत्तम हस्ती की कान्तिको खंडन करने वालाथा १९

यमलोक को जानेके वास्ते तैयार हुआ उत्तम मनुष्य पृथवीका हरलेनेवाला भालेके युद्धमे प्रवीण वैकुंठको गया क्योंकि निश्चय वह हीन दीन लोगोंका पालनेवालाथा २०

जावली पुरको जिसने ज्वालापुर करदिया अर्थात् उस्को फूंकदिया और पल्ली छोटे गांवको उसने झोपडेवाला करदिया गुस्से से जिस पराक्रमने शत्रुका बल बुढियाका सूत बाततूल तुल्यकरदिया २१

जिसने यशको गलीमें चंद्र शालामें फैलाया कैसा यश कि जो दिल्लीके न लेनेसे थका हुआ कुरिकाके लाभसे प्राप्त या जिसमें दिल्लीके न लेनेसे कालापन आया २२

उस्को बडे भाईका बेटा विद्याके समान पालक पृथ्वीराज नामक हुआ क्योंकि गोदान स्वर्ण पर्वतादिकोंके दानसे दीनताको दूरकिया २३

धर्म्ममें अत्यासक्तने अनिर्मित वा स्वयं भूरूप पार्श्वनाथको भक्ति मुक्तिके हेतु मोराक्री ग्रामदिया २४

जिससे स्वर्ण आदिक दान १० बडे तुला पुरुषदानोंसे और नगरोंके प्रदानसे भी ब्राह्मण पूजा किये गये और चतुरराजा वस्तपाल को जीत करके उस्का सुन्दर मनसिद्धि नामक हाथी लियागया २५

उस्कोबाद सोमेश्वर के प्रसादसे जिसने राज्य पाया सोमेश्वर नाम राजा जिसकारणसे कि सोमेश्वरकी उस्को बहुत भक्तिथी मनुष्योंमें शिवसमान हुआ २६

जिस अत्यन्त महा प्रताप वालेने प्रताप लंकेश्वर के नाम को पाया जिस्के साम्हने बडेबैरियों के सरगिरोह कोई मरे कोई भागगये २७

जिसने रेवा के तीर पर पार्श्वनाथ स्वयम्भूको अपने राज्य समयमें स्वर्ग की कामनासे रेवणा नामक ग्राम भेट किया २८

२९ ९० तक कारापकवंश वर्णनम् संवत् १२ २६ विक्रमी फाल्गुन वद २ गुरुवार हस्तनक्षत्र वृद्धियोग तैतिलकरण

॥ श्रीश्रीहरिः ॥

VI.

Translation.

आबू पर्वत पर अचल गढके पास अचलेश्वर महादेवका मंदिर है उसके पास के मठमें के शिलालेखका भाषांतर

शिवजीको नमस्कार ध्यानका श्रेष्ठ आनंद है जिनको ऐसे बहुतेक ब्रह्मादिक देवताभी अपनेको पहचानने योग्य तथा स्वभावही से निर्मल ऐसे जिनके तेज को किंचित मात्र जानते हैं माया रहित शरीरवाले अपने मे मिलेहुये लोगों को संसार का अभावदेनेवाले अचलेश्वर प्रभू प्रीति पूर्वक प्रतिदिवस कल्याण करे ॥१॥

पद्मासन परबैठकर सृष्टी रचनेके हेतु जो अपने शरीररूप अग्निको सदा प्राणों करके आहुती देतेहैं ऐसे विश्वमूर्ति जगतरूप ईश्वर से पूर्व नील लोहित (कंठ श्याम और केश लाल हैं) ऐसा जिनका शरीर सो शिवजी उत्पन्न हुये दुष्ट अंगूठेके नखके अंकुर से हठकरके काटा हुआ जो ब्रह्माके तेजोमय

पांचवेसिरको कमलसमान हाथमें धारण करने वाले ऐसे शंकर तुम्हारी रक्षा करे ॥२॥

नहीं समझमें आते हैं जिसके अक्षर जो ऐसा अत्यंतशब्द वाला जप है जिसका और कामों में परिश्रम त्यागदिया है जिसने और जिसके मनमे शरीर का कालापन त्यागने की इच्छा है ऐसा मद यानी घमंड करके जिसने बडीपाई है ऐसे भौरोंके झुंड आज तक तेजरूपी कुम्भस्थल पर्वत को पाया है और वहां तपश्चर्या करे हैं जिससे विघ्नके नाशका उदय है और हाथीका है मुखजिसका ऐसे जो गणपति देव तुम्हे लक्ष्मी दे ॥३॥

हिलते हुए समुद्र सें फटते हुये पर्वतों की पंक्ति करके फिरता हुआ जो भूतल है अर्थात चलायमान जो पृथ्वी है ऐसा टूटके पडता हुआ जो आकाश तथादिशा के छोरोंका इकट्ठाहोना ब्रह्माण्डरूपपात्र की स्थिति पडती है जिससे वैसेही कल्पान्तर के विपरीत पनेमें भी जगत को अत्यन्त उद्वेग देनेवाला और अद्भुतसमुद्रको फांदना जिनका वे हनुमानजी अपने को नाशसे बचावे ॥४॥

शाखा उपशाखा करके अथवा बडी छोटी डालीकरके व्याप्त ऐसा सुंदर है वंश अथवा गाठ या संगति जिस्की ऐसे गुणयुक्त करके योग्य अथवा प्रत्यंचा की डोरी बांधने लायक और राजा ओं के मस्तकपर वा पर्वतों के शिखर पर किया है निवासस्थानजिसने ऐसे बडेगुहिल वंश जयपाते हैं ॥५॥

जिस गुहिलका वंश राजाओंमे भगवान नारायणके समान कहलाता है यहसत्य है ऐसा न होयतो मुक्तिके लिये कल्पनाकरीहुई और वेतों करके हाथमें रक्खा है उज्वलदण्ड जिसने ऐसा और प्राणकी रक्षा करनेमेहै बुद्धि जिसकी ऐसा और लक्ष्मीके उत्तम उदय के साथ सदा जल रक्खा है हाथमें जिनोने ऐसे राजा उस्का कैसे आश्रय करें ॥६॥

क्लेश की बातों को ओछीकाटनेमें चतुर एसा जो देश वा पारावलमें दुर्जनमनुष्यों की मेद की दुरगंधिके समूह करके अत्यन्त आर्द्रकिया हुआ है अतएव उस देशकी शोभा अधिक है स्वर्गको जीता है जिसने और सब शहरों की शोभाके गर्वको कसौटीमें लानेवाला परीक्षा करनेवाला एसा जोमेद पाट नामको धारण करे है ॥७॥

इस मेदपाट अथवा मेवाड देशमें बडाई के योग्य नाग ह्रद नागदा नामकशहर है वहां तपमात्र है धन जिनके ऐसे हारीतऋषी ने तपश्चर्याकरी है ॥८॥

और जहां जगतके हितके लिये आरंभकिया है यज्ञका अनुक्रम जिनोने ऐसे किले एक गृहस्थ पुरुष उत्तम महिमाधारी उत्पन्न हुये पुण्यरूप हविष् (यज्ञ कुंडमें होमनेके पदार्थ) करके बडे समर्थ जो लोग अग्निको प्रसन्नकरें है वैसेही

औरभी प्राणायामकीरीतिसे प्राणवायुको नासामार्ग ऊंचाखेंचकर रोककर क्रमसे पीछा उतार वशकरनेकी व्यवहारकरके जाना है सुख जिन्हने और प्राप्त हुआ है तत्त्व ज्ञान जिनको ऐसे मुनिजन सुंदर एकान्तस्थलमे रहकर आत्मामें रहे हुये विश्वको देखते हैं ९

तपस्वी पुरुष जहां रहते हैं और बहुधा जहां बंधन छूट जाते हैं ऐसे इस वनमे योग दूरा वशकरी हुई है इन्द्रिया जिसने ऐसे जो हारीत मुनि जगत के वृत्तांतको प्रत्यक्ष देखते हैं अपने शरीर के नाशपीछे शिवजीके संग को पाये हुये सिद्धिके स्थानरूप सो हारीत अपनी सेवामें प्रख्यात ऐसे जो बापा रावल उनको राज्य लक्ष्मी दी १०

बापारावलने अपनी की हुई सेवाके छलसे ब्रह्माके समान हारीत मुनिके पाससे पैरकी बेडी (पुरुषोंके पैरमें पहरने का कडा) का छलकरके अपनां ब्राह्मण संबंधी तेज मुनिको देकर क्षत्रीका तेज प्राप्त किया तिनके वंशमें उत्पन्न हुये ये गोहिल पृथ्वीमें आजतक क्या देहधारी क्षत्रियोंके धर्मजनहोय ऐसे निरंतर शोभे हैं ॥११॥

बापारावलका पुत्र न्यायमें बरतनेवालेगुहिल नामी राजा हुआ जिसके कुलमें जन्मपाये हुये राजा गोहिल जातसे पहिचाने जाते हैं ॥१२॥

सो वे गोहिलसे अमृतके किरण कें समान सुन्दर बुद्धिवाले विद्या रूपी अमृतका अलंकार धारी विनाविघ्नके कामदेवके वेग को जीतनेवाले अतिशय मनोहर आकृतिवाले गांभीर्य उदय वाढ्ढिमे भरे हुये समुद्रके गर्वको तोडने वाले और लक्ष्मीके पतिके सेवक भोजनामी राजा भये १३

जिसके बाद लीला युक्त तीक्ष्ण तरवार सहित भयानक हाथवाले शील नाम उत्साह का बोधदेनेवाला रोमांचको धारणकरनेवाला एसा आप रसके समान साक्षात बना है देह जिसका एसा सूरवीर शीलनामी शत्रुओं की लक्ष्मी हाथसे भोगने वाला हुआ ॥१४॥

पैरकी अंगुलियां पर्यंत वस्त्रपहरने वाली जो स्त्री (अथवा शब्दस्तोम महानिधि नामकोषमें चोल शब्दका अर्थ द्राविड़ और कलिंङ्ग देशके मध्य का देश करके लिखा है उस प्रमाणसे इसदेशमें रहनेवाली स्त्री) की प्रीत को तोडने वाले कुलवान राजाओंकी पंक्तियोके मुकटरूप कर्णाटक देशके राजाको दंडदेने वाले भगवान की प्रतिमाओं में प्रीतलगाने से अपने मनको आनन्ददेने वाले न्यायकामर्म रहस्य तथा पारिहास वाक्यमे मंत्री रूप कालके समान भयंकर तीक्ष्णधनुषके दंडकरके असह्य एसा उनके काल भोजनामी राजा उत्पन्न हुआ ॥१५॥

जिनका वंश अपनी छायासे स्त्रियों को और फलकर के विद्वानों को तथा सब असवारीके यूथोंसे दिशाओं को ब्राह्मणों को शाखाओं करके हर्षके स्थान समान आनन्द पावें ऐसा करनेवालें बलिष्ठ अंकूरवाले अतिमनोहर पृथ्वीको पालनेवाले और कल्पवृक्षके गर्वको दूरकरनेवाले भर्तृ भट नामी भये ॥१६॥

जिनके बाद मुठीमे आनेवाला अर्थात् सूक्ष्मकटिभागवाले और कपाटके सदृश बडी छातीवाले जिसने भयभीतकर रक्खाहो पृथ्वीको धारण करनेवाले राजारूप मदोनमत्त हाथीको अथवा पर्व्वतके मदोन्मत्त हाथियोंको जिसने पृथ्वीपत्ति सिंह जय पाते हैं ॥१७॥

इनका पुत्र समहायिक नामी अपने हाथसे ही प्राप्तिकी है एक सहायता जिसने और जिसने नही झुकाया है कहीं सिर अपना ऐसा भोगीश्वर पृथ्वी नाथ बडे भारी भारको धारणकरे है जिसके क्रोधरूप अग्नि की चिनगारियोंके तेजसे दुखी शत्रु दौडते हैं ऐसेही इन्द्रियों को स्वाधीन रखनेमे व्याकुल बुद्धिवाले पतंगकी भांति पडते हैः ॥१८॥

इसके बाद पृथ्वी की रजसे धूमिल हुआ है दिवस जिसमे ऐसे प्रयाण (युद्धके लिये जाने को तैयार समयके) आकाशमें खुमान का खड्ग रूप मेघ स्वच्छधार रूपजल करके उत्तम योद्धा ओं को शीचे है और उनकी स्त्रियों के नेत्र अंजन सहित विचित्र है कुच ऊपर का कुंकुम धुलजाता है ऐसे ही सुन्दर बुद्धवालोंके मन आज विद्युतपातको भांति गर्जनाकरे है सो अति आश्चर्य है ॥१९॥

इनके बाद संग्राममें कोई भी जीतसके नही एसे ही कालका अनुकरण बराबरी करनेवाले और जिसका भयंकर खड्ग शत्रुओं की सेना को खलके समान नाशकरकेजीते हैं जिसने एसा पृथ्वी को पालने हारा अल्लट भया ॥२०॥

तिनके बाद संग्राममे राजाओं के वाहनों को छीनलेनेवाले विवेक विचार सहित शिवजी की सेवा करनेवाले और सर्व शत्रुओंको भयदेनेवाले नरवाहन उदयको प्राप्त हुये ॥२१॥

इनके बाद पराक्रम करके सर्व शत्रुओं की नीतिको धो डालनेवाले गुणकरके उज्वल ऐसेशक्ति कुमार की कीर्त्ति ताराओंको भी जीतनेवाली ताराओंके समान चमकती हुई उत्पन्न हुई ॥२२॥

ऊंचे पर्वतोंपर पैररखनेवाले शंकर से शोभित कार्तिक स्वामी हुये वैसेही बडे राजाओंके भी मुकट मस्तकपर पैर रखनेवाले शक्तिकुमार से युद्ध भूमिमें शत्रुओंको प्रचंड तेज दिखानेवाले शुचिवर्मा राजा हुआ ॥२३॥

मधुर स्वरवाली किन्नरकी देवताओंके यहां गाने वाली स्त्रियोंने भी गाया

है जिसके हाथके पराक्रम का यश जो ऐसा शुचिवर्म्मा अपने बडे सत्कर्मों से स्वर्ग लोकमे इंद्रके वैभवको पाया तिसके पीछे मदको पाया हुआ काम देवके विकारवाली शत्रुओंकी स्त्रियोंकी गंडस्थली है पांडुर श्वेत पीत रंगवाली जिसकरके सर्व ब्रह्मांडको उज्वल यशोंकरके नरवर्म्म राजाने श्वेत किया ॥२४॥

नरवर्म्म राजा देवताओंकी स्त्रियोंके मिलनेके आनन्दमे उत्साही हुये वाद स्वर्गमें गये बाद इन्द्रके समान है धर्म जिसका ऐसा कीर्ति वर्म्मा पृथ्वीकी रक्षा-करता था ॥२५॥

काम करके दुर्वल अत्यंत क्रोधवाले तपमें प्रीतवाले ये किर्ति वर्म्मा राजा स्वर्ग का समुद्र जो गंगानदीके जलमें नहाये सो और स्वर्ग लोककी स्त्रियोंको खिलाते हुये अपने दोनो हाथों से तोड डाले हैं शत्रु ओंके घर जिसने ऐसा उग्रपराक्रम करके द्वेषियों के सिरोंको सिंहासनके नीचे घुमानेवाला वैरड राजा भया ॥२६॥

प्रसन्नता को पाई है सर्व द्वेषियोने जिससे एसा जो वैरट राजा मृत्युपाये बाद वैरिसिंह पृथ्वीमें अपना नाम करनेवाला शत्रु ओंमें सिंहतुल्य हुआ ॥२७॥

इनके बाद बडीछातीवाला और पतली कमरवाला और क्रीडामात्रमें पर्वतों वा राजाओंको भय भीत करनेवाले विजय हैं उपपद पासकास्थान एसा जो सिंह विजय सिंह शत्रुरूप हाथियों को मारने वाला भया ॥२८॥

उनके शत्रुओंकी स्त्रियां अपने पतिके वियोगजन्य विरह से छोड दिया है जिसने हृदय के ऊपर चुपडना चंदन सहित गौरत्व इसीसे कर्णिकार (गर मालाका झाड) का क्रम निरन्तरभाव उत्पन्न हुआ है क्या क्योंकि जिसका फूल कारण और गुणके समूहके साथ सर्वरीति मिलता आवे ऐसी जिसकी योग्यता ऐसे लाल पने को भीतर की तर्फ और पीले पन को बाहर की तरफ धारण करे है ॥२९॥

तिसके वाद प्रतापरूप अग्निमें जलगये शत्रूराजा ओंके धूएमें से वनी हुई स्याही को रस करी एसा शूरवीर अरि सिंह राजा सर्वदिशाओंमे अपने यशकी प्रशस्ति लिखता हुआ ॥३०॥

विद्वानों की तरुण स्त्रियोंके नेत्रमें अंजन को देनेवाला ऐसे इस राजाने उनको नेत्रों में जल हर्षाश्रु दिया और शत्रु ओंकी स्त्रियों का काजल रोदनाश्रु से हर लिया यही आश्चर्य है ॥३१॥

इनके बाद इस अरि सिंहसे राजा ओंके मस्तक रूप रत्नोंकी कान्तिवाले पर्वत के शिखर पर प्रकाश वान है सुवर्ण का सिंहासन जिसका ऐसे सूर्य के समान तेजवाले चोडनामी राजा हुये ॥३२॥

इनके वाद हाथियोंके कुंभस्थलपर चले है खड्ग जिसकी और संग्राममें पीछा हटाया है काल को भी जिसने ऐसे शत्रुओंमें जिसके पराक्रमकी कथा प्रवृत्त करनेवाला जो चोड सिंह का पुत्र विक्रम सिंह भया ॥२३॥

हाथ के पराक्रम की चेष्टाओं करके उखाड डाले हैं सर्व कंटक सर्वक्रूरशत्रू ऐसे जो क्षेम सिंह राजा उस्के पीछे पृथ्वीमें कल्याण के करने वालेहुये ॥२४॥

किञ्चित रुधिर पीकर हुआ है हर्ष करके अथवा उत्कृष्ट मदकरके शोभाय मान है गति चाल जिसकी जिसमें मूढ बेभान ऐसी प्रेतों की स्त्रियां रसना के अतिशयपनासे उद्गार मुद्रा तृप्त हुये की निशानी युक्त ऐसी खप्परों सहित हर्षयुक्त साथ रहनेवाली दासियों के हाथमें अपना पात्र रखे हुये पतियों को देती हैं और खुबपीकर प्रसन्न होकर वह पिशाच जिसका यश गाते हैं ॥२५॥

उस क्षेम सिंहसे कामदेवके शरीरसे भी सुन्दर शरीरवाले अपने मंडलके राजाओं का सर्वस्व हरलेनेवाला सामंत सिंह नामी पृथ्वी पालक राजा हुये ॥२६॥

खुमाण की प्रजाके वियोगसे विस्मयकारक है लक्ष्मी वा शोभाजिसकी और विरह को नही देखनेवाली गोहिल वंशकी सेना उस्के द्वारा शत्रुओं के पास गई हुई पृथ्वी को पीछीलेकर कुमार सिंह राजा हुआ ॥२७॥

इनके बाद जीतनेवाला एसा जो पुरुष का नाम शत्रुओंकी सेना का मथनकरे ऐसे अनुकूल अर्थ सहित हुआ हैः सो मथन सिंह नामसे राजा पराक्रम करके युक्त शत्रुओं को जीतनेवाला हुआ ॥२८॥

मियानमें रखी हुई प्रत्येक युद्धके रुधिर को भोगता नही है और रुधिर को पीता हुआ मियानको जो नही मानता एसा खड्ग जो मथन सिंह हाथमें मिलकर संग्रामकी सीमाके विषय २ आश्रयवाले फलको पाता है क्षणमें रुधिर और क्षणमें मियान को पाता है ॥२९॥

अनन्तर बाकीकि सर्वसार रूप पद्म सिंह राजाने मेवाडकी पृथ्वी पाली और खेलायकर प्रसन्न रखी ॥४०॥

इसपर से ऐसा अनुमान होसक्ता है कि कुमार सिंहसे ऊपरका पंद्रहवा पुरुष खुमाण हुआ है तिनके वंश जो कि सैन्य विना राजाके केवल सेनापतिके स्वाधीन रह कर जय प्राप्त करते होंगे परंतु कुमार सिंहने तो सेना राजा युक्तकरी अत एव स्वतः राजा है इस प्रकार रहा होगा अथवा अपने मंडलेश्वर राजा।ओं को सैन्यमें सहचर साथ चलनेवाले सेवकतुल्य रखे होंगे ॥

विद्वान के समान यह पद्म सिंह राजा चीरडाले हैं शत्रुओंके मदोन्मत्त

हाथियोंके कुंभस्थलरूप पर्वतोंके शिखरोंमे से निकलपडे हुये मोतीके समान मणीतुल्य उत्तमवर्णको भोगे एसा अपने हाथ संबंधी बीररसके प्रबंधो को संग्राम भूमिरूपपाटियों में अच्छीरीति से लिखा ॥

ये पद्म सिंह देवता ओंके आसनपर बैठे बाद स्वर्गमें गये बाद कोइक शत्रुराजा की जडको घर्षनाकरने उखाडनेवाली है हाथकी लक्ष्मी जिसकी शक्ती ऐसी ओर तुर्कस्थानके रहनेवाले सैन्यरूप समुद्रके लिये अगस्त्य मुनीके समान जैत्र *सिंह राजा पृथ्वीकी रक्षा करनेवाले हुये ॥४२॥

सिंधिओं की सेनाके रुधिरसे मदोन्मत्त वैसही घेरामे घिरीहुई अपनी स्त्रियोंके आलिंगनके आनन्दमें मग्न है मन जिसका ऐसे पिशाच संग्राममें आजतक श्रीजैत्र सिंहके हाथके पराक्रम को ऊंचेस्वरसे गाते हैं ४३

(इस श्लोकके उत्तरार्धमें भ्रघ शंक लिखा है सो वहां भ्रश शंक ऐसे लिखना चाहिये) करी है शत्रु ओं को बहुतसी शंकाजिसनें एसा भयरहित तेज सिंह राजा जैत्र सिंहके बाद पुण्य रूप यशवानने इस भूमंडल को उज्वल किया ॥४४॥

हयागों की कोटी प्रत्येफिरनेवाला एसा यह तेज सिंह राजाने उत्तम भूमिमें त्याग दान संबंधी मोतीका मुक्तिका बीज बोया और उनके दानके हेतु संकल्प कियेहुवेजलसें सीचकर सद्गुरूप साधन करके बडे पुण्यरूप फलको लेकर और नहायकर अपने आप लक्ष्मी संबंधी कितनेक विस्तारवान यशके ढेर दिशादिशाओंमें वृद्धि जादा बढाया ॥४५॥

कसोटी समान शोभाय मान है दाढका अंकूर जिसका ऐसे जो आदि वराह तुरुष्क तुरक रूप समुद्रमें से डूबी हुई गुजरात की पृथ्वी का उद्धार किया है सोई यहतेज सिंह का पुत्र राजा ओं का राजा होशियार समर सिंह राजा अभी भूगोलमें बलि राजा और कर्ण राजाके समान दान *करता हुआ ॥४६॥ पृथ्वीको धारण करता है ॥

हे तेज सिंह के पुत्र बात के सचे चौथे तालकी रचना को सजीवन करने वाली तालियोंसे भी करके दोनोहाथमें लिये हैं धडसे कूटपडे हुये मस्तक ऐसे जो है और अपनी प्रिया ओंको नचाते हुये शत्रु ओंके रुधिरका है नशा शोक जिनको ऐसे उन्मत्त राक्षस खड्गकी प्रतिष्ठाके पाये हुये तुम्हारे यशको आजतक संग्राममें गाते है ॥४७॥

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* इस जैत्र सिंहके समयकी एकलिङ्गजी मैं एक खांभी है उस में सम्मत् १२७० में महाराजा धिराज जैत्र सिंहदेवेषु करके लिखा है

* बलि राजा और कर्ण राजा की तरह दातार होकर पृथ्वी को पालता है.

हे नरके ईश्वर ! प्रमाणमें न आवे नापसके नही ऐसे गुणों की गुंथन जिनकी किरोड़ संख्या करके दृढबांधा है धर्मके देहके समान आकृति जिसके समान तुमहो जिस की गाने योग्य है सर्व स्तुति सो ग्रंथ वडेहो जानेके भयसे नही गाई जा सक्ती है ॥४८॥

देवता ओंने सेवनकिया है बडेपर्वतों मे रत्नरूप आबू पर्वत बहुत जयको पाता है जिसमें सोलह विकारोंके *परि पक्कपनसे रहित देहाभिमान शून्य ऐसे वसिष्ठ मुनितपश्चर्याकरे हैं ॥४९॥

कोणमें है प्रवेश जिनका ऐसे अत्यंतमूढ पुरुष और चतुर पुरुषके अनुक्रमसे सर्व वैभव तथा मुक्तिदेदेनेवाले और लक्ष्मीके घर तथा पुण्यरूप गंगाजीके संगसे पवित्रहै आत्मा जिसकी ऐसा जो पर्वतमें समर्थ भवानीपति देव जगतमें व्यापक रहने का भावदीखे ऐसे सबमें रहने के कारण अचलेश्वर पनको पृथ्वीके ईश्वर पनको अथवा कभी चलायमानहोयनही ऐसीस्थिति को पायाहैं ॥५०॥

सर्व सुंदर पनको सारका ढेर न होय क्या ऐसे अद्भुत तपस्वियोंको रहने योग्य यह अनादिमठ जिसमें रहा है ५१

जिसमें कभी तपस्वी और कभी सुन्दर आचरणवाले मनुष्य और कभी देवता लोग आत्माकी निवृत्तिके लियेही जैसे तीनों कालमें भूत भविष्य वर्त्तमान पर ब्रह्मको पाया है जिसकी प्रथम उत्पत्तीको आबूपर्वत सहित पौराणिकोनें गाया है सो मठ तीनों क्षणमें करके तीनोंलोक स्वर्ग मृत्यु पाताल की लक्ष्मीको इस पर्वतमें धारण की है ॥५२॥

पृथ्वी पतिके पति श्रीसमर सिंह अपने भाग्यके वैभव से आज्ञाकरनेवाले इन्होने अपने कल्याणके लिये इसमठ का जीर्णोद्धार किया: क्योंकि ऐसे काममे उत्तम आस्था अर्थात् श्रद्धावाला है अतएव युक्तिसे राजा सन्यासी और मुनियों के लिये उत्तम भोजन की स्थिति अर्थात् अन्न क्षेत्रभी प्रीतिसे बहुतद्रव्य व्ययकर करता है ॥५३॥

समर सिंह राजाने आयू को वायू और विजलीके समान चलायमान देखकर अचलेश्वर का ध्वजस्तंभ स्वर्णका ऊंचा वनवाया (इसश्लोकमे कर्तरी प्रयोग है परंतु अर्थ की अनुकूलताके लिये भाषांतरमे कर्मणि प्रयोग लिखा है) ॥५४॥

शंकरके व्रतों करके व्रतपाली अनादरमात्रमे जिसने उखाड़ डाला है संसार का बीज ऐसा भावाग्नि नामी स्थानाधीश स्थानकास्वामी पहिले इसमठमेथे ॥५५॥

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* पृथ्वी जलतेज वायु और आकाश येपांचमहा भूत तथा श्रोत्र त्वचा प्राण दृष्टि और जिह्वा ये दश इन्द्रिय और मन यह १६ विकारक होते है

परस्परके वैर भावको त्यागकरके शुद्धदेहवाले स्नेहमे बंधा हुआ है मन जिसका और मनुष्योंमे दयावाले अच्छी रीतिदेखा है मोक्षके करनेवाला तत्व जिनोने एसे जो सिंह तथाहाथी आदिजीव इसमठके पास तपश्चर्या करे है ॥५६॥

वह भावा "अग्निमें" निष्ठा तत्परतावाला भाव शंकर नामी शिष्य शिवलोक सायुज्य अपनी देहसे मिलनेके लाभके लिये दुःखसे जो होसक्ता है ऐसा तप करे है ॥५७॥

आबु पर्वतमे से उत्पन्न हुये भये फल और फूलों को समृद्धी को सदाकाल धारण करनेवाले यह वृक्षोंनें नाशपाया है *विषय वासना जिसकी ऐसी पुरुषों कीसी उत्तम ऐसे नियमितविषयकी निष्ठा दूसरे मुनियोंमे बहुत प्रकार करके सूचनाकरे हैं विषय सुखके त्याग करनेवाले मुनिजन जैसे दृढ नियम पालते हैं एसे तुम इतर पुरुषभी हमारी वृक्षोंकी जड एसी वृत्तिको देखकर सीखो एसा दिखाते है ॥५८॥

समर सिंह राजाने भाव शंकरके उपदेशसे सुवर्णके दंड सहित मठ आबूपर्वतमें कराया ॥५९॥

एकलिंगग्राममें त्रिभुवन स्वर्ग मृत्यु पाताललोक में प्रख्यात ऐसे जो श्री समाधीश चक्रस्वामी श्रीएक लिंगजीके शिवालयोंके समूहोंमे प्रियपटुका पुत्र जो वेदशर्म्मा प्रशस्ति का करनेवाला भया सो चित्र कोटका रहनेवाला नागर ज्ञाति का ब्राह्मण वेदशर्म्माने सर्व विद्वानोंके मनको हरनेवाली और प्रकाशित गुणकरके उज्वल एसी यह प्रशस्तिकरी ॥६०॥

भगवान अचलेश्वर जहांतक आबूपर्वतके संगको धारण करे वहांतक बांचनेवाले कवियोंको यह प्रशस्ति आजीविकारूप होय ॥६१॥

यह उज्वल प्रशस्ति शुभचंद्रने लिखी और बुद्धिवान् शिलाट्ट कर्म्मसिंहने खोदी ॥६२॥

विक्रम संवत् १३४२ के वर्षमे मृगशर शुदि १ केदिन प्रशस्तिकरी

इति भाषान्तर

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* पांच ज्ञान इन्द्रियों को ग्रहण करने योग्य शब्द स्पर्श रूप रस और गंध इन विषयोंकी तृष्णा।

Notes on the Chittagong Dialect.—By F. E. Pargiter, B. A., C. S.

INTRODUCTORY REMARKS.

The language spoken in Chittagong is a dialect of Bengali, but greatly corrupted, owing to the remote position of the district, the strong Muhammadan element in the population, and the tendency in East Bengal to speak quickly and clip the words.

These causes have been at work in Bakarganj, and the country east of the Meghna, and the language spoken there differs from ordinary good Bengali, the difference increasing as we proceed south-eastwards. The extreme is reached in Chittagong where the difference is so marked that a native from other parts of Bengal does not readily understand the language. Thus আঁই ন দেইত ফারির means আমি দেখিতে পারি না, I cannot see; ব্যাগ্গুন means বেবাক গুলিন, everything; তর্ stands for তার পর, after that. Ordinary colloquial Bengali is also met with there, or at least words used in ordinary colloquial Bengali, but such words are mixed up with purely local expressions, so that without a knowledge of the latter, it is not easy to understand what is said.

In offering these notes on the Chittagong dialect I know how incomplete they are, how many matters are unnoticed, and how much remains to be filled in to render this sketch thoroughly serviceable. These notes were collected some years ago, when I was residing in Chittagong. I have since then collected memoranda when studying the colloquial in other districts of Eastern Bengal where I have been. Several of the peculiarities here noticed are not confined to Chittagong, but prevail generally throughout Eastern Bengal, though not in so marked a degree. I may hope, however, that these notes, incomplete though they are, may be of use to others, whether as an aid in learning the vernacular, or as an inducement to supply what is wanting.

NOTES ON THE GRAMMAR OF CHITTAGONG DIALECT.

PRONUNCIATION OF THE LETTERS.

The letters are the same as in pure Bengali; but the following peculiarities may be noticed—

ক at the beginning of a word very often has the sound of the letters ح (ḥ) and خ (kh) in the Hindustani—thus কাইম "a split bamboo" is pronounced kháim; কোন্দে "whither?" khonde; কৌন "who" khaun.

খ is often pronounced like হ; and is sometimes corrupted to গ, thus মুগ দেক্ চিনি = মুখ দেখিলে চিনি, "I should recognise him if I saw his face."

ছ is almost invariably pronounced like s; thus আছি "I am" is pronounced ási.

ট and ঠ are often corrupted to ড; thus উড for উঠ "get up"; মাডি for মাটী "earth"; উডান for উঠান, "the court-yard in a house."

প at the beginning of a word is very often pronounced like ফ, *f*, —thus ফারি for পারি "I can."

ফ is often pronounced like প or হ—thus পেল্লাম for ফেলিলাম "I threw"; and হেল for ফেল "throw."

শ sometimes and স generally, at the beginning of a word, are pronounced like হ *h*—thus সকল "all" becomes hakal; শোর "a noise" becomes húr.

য in combination is almost always *distinctly* pronounced as *y*—thus কর্য্য "kargya." When the vowels অ and আ immediately precede the য phalá, they are pronounced as if the vowel ই came in between, and this is especially the case when the য in combination is followed by the vowel এ—thus মাপ্যে "he measured," is pronounced máipye; সাক্ষ্য evidence sáikhya; আস্যে "he came" áisye. Similarly সমক্ষ "in the presence of," "before," is pronounced samaikhye.

CORRUPTION OF WORDS.

The chief peculiarity of the dialect spoken in Chittagong is the extent to which the words are shortened by corruption. The chief ways in which this occurs are these—

(1) A single consonant, especially a hard one, occurring between two vowels is often elided, and the vowels open one on the other without blending; the elision is almost invariable if the second vowel be ই or উ—thus; ডাকিও "call" becomes ডাইও; আসি and আসিও "come" become আই and আইও; ডুবা "a bamboo hedge around a tank" becomes ডুআ; দেখিতে "to see" becomes দেইতে; বেবাক "all" becomes বেআক and then ব্যাক; বাঁধে "he binds" becomes বাএ; শ্বশুর "father-in-law" becomes হউর; খাইলাম "I ate" becomes খাইআম; বসিও "sit down" becomes বইও; খুলিয়া "having opened" becomes খুইয়া and খুই; নিকাল "draw out" becomes নিআল.

But ম in such a position is often changed to ˙ anuswár; thus আমি "I" become আঁই; তুমি "thou" becomes তুঁই; তামাক "tobacco" becomes তাঁউক and তাউক; আমার "my" becomes আঁর; and তোমার "thy" তোঁর.

(2) A compound consonant preceded by a long vowel in the middle of a word is generally reduced to a single one, all except the last being omitted or being replaced by anuswar;—thus শুখ্না "dry" becomes হুঁনা.

(3) Final এ is often dropped, especially in the locative affix তে in nouns, and in the infinitive of verbs—thus বাড়িতে "at home" becomes বাড়িত্; কহিতে "to say" becomes কহিত্.

(4) Final অ is omitted in the 3rd person, Past and Pluperfect Tenses, in verbs; thus গেল্ for গেল; আছিল্ for আছিল; কর্গিল্ for কর্গিল.

(5) Short words with আ in the first syllable, sometimes insert ই (less frequently উ) after the আ in pronunciation—thus আইজ for আজ "to-day"; হাইল for হাল "rudder"; আউগে for আগে "before".

(6) In words of several syllables, especially those borrowed from Persian and Arabic, the accent is thrown back as far as possible, and the following syllables are lightened; thus হওয়ালা (Arab. حواله) "charge" becomes হাওলা "a háola" (a tenure in which the tenant receives "charge" of a tract of jungle to be reclaimed); এলাকা (Arab. علاقه) "connexion" becomes এলকা.

DECLENSION OF NOUNS.

The declension of nouns does not differ materially from ordinary Bengali, allowance being made for the changes due to corruption, thus the দিয়া of the Instrumental is corrupted to দি. The chief peculiarities are these—the Nominative often ends in এ; the Ablative is formed with তুন "from"; and the Locative often drops the এ of the termination "তে" so that it ends in *t*, as ফারত for পারেতে "on the bank." The abl. তুন is added in nouns to the word itself, but in pronouns to the genitive case.

A sort of double case is sometimes met with, thus বহিনেরত্ (gen. and loc. cases) "at a sister's [bári]." I have also heard হাওয়ার ইতে "by the force (lit., *this*) of the wind"; but this expression seems to be merely an instance of the common use of the pronominal form ত্রি "this" ("what-do-you-call-it") to denote something that one cannot name at the moment.

	Sing.
N.	পুত or পুতে a son.
Ac.	পুতরে
I.	পুতরদি
D.	পুতরে
Ab.	পুততুন
G.	পুতর
L.	পুতে
V.	ও পুত

	Sing.
N.	ফোইর a tank.
Ac.	ফোইর
I.	ফোইরদি
D.	ফেইরে
Ab.	ফোইরতুন
G.	ফোইরর
L.	ফোইরত

NUMERALS.

The numerals are the same as in ordinary Bengali, but অষ্ট is commonly used for eight instead of আট.

The word উগা or উআ is very generally used after a numeral to denote a "thing" or "piece," thus অষ্ট উআ "eight things." When affixed to the word এক "one," the compound becomes এগ্ উআ, অগুআ and উগুআ "one thing or piece." It is also added to nouns to particularise, thus হে রাত উআ "that particular night."

আনে (for খানে) is also used, thus দোনোঁ আনে "both things."

গুন is used with adjectives, thus কত গুন "how many?" "how much?" ব্যাগ্গুন "everything."

THE VERB.

The most striking differences occur in the conjugation of the verb, which varies considerably from ordinary Bengali. Verbs are all conjugated very much in the same way, but the formation of the Past Tense (and the Pluperfect which is formed from it) presents several differences which depend on the final letter of the root.

The ordinary mode of forming the Past Tense is by affixing য়ি, য় and য়ে to the root if it end in a consonant, and ইয়ি, ইয় and ইয়ে if it end in a vowel, for the 1st, 2nd and 3rd persons respectively. This য় is distinctly pronounced *y*—thus মাপ্যি "I measured;" আস্যি or (আস্সি) "I came;" আস্যে (or আস্সে) or আইয়ে "he came;" খাইয়ে "he ate;" বুঝ্যি "I understood."

But if the root ends in র় or ড়, (and also গ), the affixes are গি, গ্য and গ্যে respectively—thus কর্গি "I did;" পড়্গি "I read;" and the গ is sometimes changed to জ thus ধর্গি or ধর্জি "I seized." The regular forms, however, or forms closely like them are in use, thus খাইলাম "I ate;" ফেল্লাম "I threw;" নাচ্ছিলাম "I danced."

The Pluperfect is formed by affixing লাম, লা (or লি) and ল, to the 1st person, Past Tense—thus লেখ্যিলাম "I had written;" লাগ্গিলান "I had begun;" কর্গিলাম "I had done;" ধর্জিলি "you seized," but আস্যেল্ "he had come."

The 1st person Future is formed by affixing য়ুম, গ্যাম and জ্যাম with or without a conjunctive ই, to the root, thus করিয়ুম or কর্গ্যাম "I shall do;" পারিজ্যাম "I shall be able." The other two persons are nearly regular.

THE SUBSTANTIVE VERB.

	Present.	*Past.*
1.	আছি "I am," "we are"	আছিলাম "I was," "we were."
2.	আছ	আছিলা
3.	আছে	আছিল্

The following is a specimen of a verb in its full conjugation.

CONJUGATION OF THE VERB করিতে "to do, make."

Present.

1. করির্ "I do," "we do."
2. করর্
3. কেরর্; honorific. কর্তন

Imperfect.

1. করিতে আছিলম "I was doing."
2. —— আছিলা
3. —— আছিল্

Past.

1.	কর্গি "I did;" or regularly	করিলাম (করিআম)
2.	কর্গ্যা	করিলা
3.	কর্গ্যো	করিল্

Pluperfect.

1. কর্গিল্যাম "I had done."
2. কর্গিলা
3. কর্গিল্

Future.

1. করিযুম* or কর্গ্যম্; or regularly কর্ব and করিবাম "I shall do."
2. কর্বা
3. কর্ব্যা* or কর্বে

Imperative.

2. কর "do thou"; and with the negative ন, করিও
3. করুক

Infinitive করিতে and করিতাম "to do."

Prest. Part. করিতে "doing."

Past Part. (করা) "done."

Conj. Part. করি, করিয়াবে "having done."

The following are specimens of other verbs, which show variations in the Present and Past Tenses.

VERB রাখিতে "to keep."

	Prest.	*Past.*
1.	রাখির	রাখ্যাম or রাখিয্যা
2.	রাখর	রাখ্যা (or রাখিয়া)
3.	রাখের	রাখ্যো (pronounced ráikhye).

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* This form is most common.

VERB খাইতে "to eat."

	Prest.	*Past.*
1.	খাইর	খাইয়্যি or (খাইলাম)
2.	খাওর	খাইয়্য
3.	খাএর or খার	খাইয়্যে

The verb যাইতে "to go" has an irregular participle গোই "having gone," which is often added to other verbs, to render them more forcible, thus আঁই গেলাম গোই "I went away"; দেও গোই "give."

THE INTERROGATIVE.

A phrase is rendered interrogative by placing না after the verb, expressed or understood, for the present tense, and নি (sometimes না) for all the other tenses—thus যাওর না "are you going?" গেলা নি "did you go?" যাইবা নি "will you go?" ও চর ন না? "is it not a *char?*"*

THE NEGATIVE.

The negative is expressed by ন, which is placed before the verb, thus—আঁই ন দিয়ুম "I shall not give." ন যাইও "do not go." ন আইয়্যে "he has not come." With the verb হইতে, ন is often blended into one word, thus—ন হইল্ becomes নইল "it was not." But the *imperative* use of না remains the same as in ordinary Bengali, thus—যাও না "go."

ADVERBS.

Adverbs of place are formed from the pronominal bases by affixing (1) ডে—thus কোডেডে "where?" or (2) যাঁ, য়ান or যানে (corruption of খান?)—thus ইযাঁ, ইযান and ইযানে "here."

Adverbs of direction are formed from the same bases by affixing দি or ন্দি (corruption of দিগে?) thus—ইন্দি "hither;" উন্দি "thither;" কোন্দি "whither?"

Adverbs of time are formed by adding the word উক্ত (وقت) or its corrupted form উত্তে to the pronouns, thus—হেউত্তে "then."

VOCABULARY.

I append a vocabulary of words peculiar to Chittagong. Out of a large number I noted down, I have struck out all that were to be found in Bengali Dictionaries, and those that remain are either peculiar, or are used in peculiar senses. A considerable number of the words, however, are not confined to Chittagong, but may be met with in Noakhali, Bakarganj, and other districts of Eastern Bengal.

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* Char = a sandbank in a river.

অগ্যাঁ করিতে *v. n.* to go to stool.

অবর (একত্র) *adv.* together.

অবে = উবে *q. v.*

আইল (for আলি) *s.* ridge of earth dividing fields.

আউগে (= আগে) *prep.* before, in front of.

আউড় / আড় { standing with the hands raised and the palms outwards to prevent a person coming against one.

আউলা ঘর *s.* kitchen.

আওরা *adj.* unclaimed (as property, waifs and strays). Pers. آوارة scattered.

আওঁর *s.* small water-way in a *band* (= চুন্না).

আখিরা *s.* hermitage.

আগাত *s.* the top (of a tree), the prow (of a boat).

আচু *s.* scratch.

আজা *s.* clasping around a person's body with both arms.

আজাইর *s.* a workman's leisure time after work is done.

আড়গড়া *s.* rough fence made of stakes.

আড়া *s.* small wage.

আনি বোলাক *s.* a bolák (*q. v.*) without the pendants.

আবাদুয়া *adj.* quarrelsome.

আম কাষ্টে উঠাইতে to burn (a person).

আমাত *s.* silence.

আর্জা *s.* extension of time.

আল্গা *adj.* another, different; দরজা আল্গা করিতে to close a door (but not fasten it).

ইঁয়ত (loc. case of *pron.* এ) *adv.* here, in this place.

ইন্দি *adv.* hither, in this direction.

ইয়াঁ *adv.* so, thus.

ইয়ান *adv.* here, in this place (corrupted from এ খানে ?)

উআ *particle* (= টি, টা) used with numerals to denote "things," and with nouns to particularise; — সাত উআ seven things; হে রাত উআ that particular night.

উজাইতে *v.n.* (from উজু and আসিতে ?) to approach direct, go straight towards. Its imperative উজাও, "come straight here!" is used as a cry to the neighbours for help, when an offence is being committed.

উজাল (from উজ্জ্বল) *s.* a torch made of a bundle of split bamboos.

উজু *adj.* right in front, straight, upright.

উবে (from উক্ত وقت, time) used in composition to denote time, thus কোনুবে, when?

উদলা *adj.* stark naked.

উদল্যা *adj.* unenclosed, unfenced, open.

উন্দি *adv.* thither, in that direction.

উমী লোক *s.* simple country folk, who have always lived in the country and are ignorant of the ways of towns.

উরা *s.* buffalo-shed.

উই / উএ } *s.* machán or raised place in a house for placing paddy baskets.

উফা *adj.* straight and upright (applied to a cow's horns).

এখিয়ার *adv.* now.

ওরা *s.* basket for collecting cow-dung (= পেড়ুয়া)

কই (pronounced koï) *adv.* where? in what place? It is used to express strong and contemptuous negation, as কই রাস্তা, "where is there a road?" "there is no road at all."

কছায়ন *s.* quarrel.

কজিয়া (for কলীজা) *s.* the liver.

কচি *s.* switch, small branch.

কড়াই
কড়া } *s.* low pot with a large mouth.

করণ্যা ঝলি a jhali made of upright split bamboos spread out and fastened to transverse strips of bamboo.

কর্দা *s.* log, block of wood.

কলা *s.* small earthenware vessel.

কল্যা *s.* the head.

কাইন্দ *s.* small natural embankment.

কাইম *s.* split bamboo; সোণার কাইম a plain gold circular bracelet.

কাগনা *s.* bracelet, wristlet.

কান্নানা খারু *s.* silver kháru.

কাছা *s.* edge, margin.

কাটতী *s.* deducting, deduction.

কাটী *s.* band, embankment.

কাটীবন্দী *s.* constructing an embankment.

কাৎ *prep.* for, on account of; in, among.

কাঢ়ি *adj.* severe (applied to a blow).

কাড়ল *s.* heifer.

কালাগাটিয়া *s.* old grass.

কাবিল করিতে *v. a.* to defeat (in a lawsuit). Arab. قابيل

কিংরত (loc. case of *pron.* কি) *adv.* where? in what place?

কিলাই
কিলে } *adv.* why?

কুটিতে *v. a.* to husk (paddy) by pounding.

কুট্ণামি *s.* seduction, intrigue.

কুড়িয়া *s.* manger.

কুদ্দিতে *v. n.* to hasten forward with anger, *lit.* to leap, bound.

কুরাই *s.* collection, gathering.

কুরাইতে *v. a.* to collect, gather together.

কুশাইর
কুশ্যার } *s.* sugarcane.

কেয়ার *s.* door, (= কপাট).

কেরেস্কাল *s.* quarrel, contention.

কোটা *adj.* turned inwards (as a cow's horns).

কোঠা *s.* field.

কোহেড *adv.* where? in what place?

কোন্দি *adv.* whither? in which direction?

কোব *s.* a blow, hit, stroke. কোব ধরিতে *v. a.* to begin. Pers. کوب beating.

কোবাইতে *v. a.* to cut, wound.

কোরে *adv.* at the side of, near.

কোষ নৌকা a large boat, bound and fastened with iron. Probably a corruption of Eng. 'coast' = a 'coasting boat', one that goes to sea.

খচি *s.* small stake in a fence.

খটিতে *v. n.* to slip aside, slink away.

খটিয়া *s.* post of a fence.

খাইন *s.* subscription, contribution.

খাওইয়া *s.* eater, person to be fed.

খাওলা *s.* eating, feasting.

খাঁড়ি *s.* channel of a river.

খাটী *s.* small enclosure made in a tank to catch fish in.

খান্তি *s.* instrument for making a hole through an earthen floor in house-breaking.

খামার বাড়ি (or ঘর) *s.* a house built near a man's land, where he puts up during the tilling season.

খারু *s.* bracelet for wrist : also an anklet.

খুপিয়া রাস্তা *s.* private path.

খের *s.* paddy-grass.

খেশী *s.* a relation, relative. Pers. خویش own.

খোচা মারিতে *v. a.* to dig a thing into the ground (as if to feel what is there).

খোয়া *s.* mist, fog.

গম *adv.* well, much.

গমিতে *v. n.* to go.

গর্দনিয়া *s.* pushing a person by the back of the neck. Pers. گردن neck.

গাটে *adv.* leaning one's body against anything.

গাত্তা *s.* swelling caused by a blow.

গাবুর *s.* coolie, servant, labourer.

গীলা (= তালা) *s.* padlock.

গুজার করিতে *v. a.* to publish, notify, make known. Pers. گذار passing (from mouth to mouth) hence public, notorious.

গৃহস্থ *s.* cultivator of land, *husbandman.*

গৃহস্থী *s.* status of a cultivator of land.

গোছ *s.* stake for fixing nets in the water.

গোছি *s.* stick.

গোধা *s.* bund, embankment.

গোন *s.* delay.

গোপ্‌তা *s.* private path.

গোবাম *s.* common pasture-land, a common.

গোমটা *s.* cow-dung.

গোয়াল *s.* cow-house.

গ্যা (gyá) is used during hesitation in speech, just as তোমার is used in Central Bengal.

ঘাটপান *s.* ferry-hire.

চঙ কাপড় *s.* kind of cloth with a variegated stripe down the middle (generally worn by Mags).

চঙ্গ *s.* high machán in fields.

চাই *s.* instrument for catching fish.

চাকা *s.* clod, lump of earth.

চান্দ বোলাক *s.* semicircular bolák (*q. v.*)

চামুয়া *s.* four-sided basket (= ডোঙ্গা).

চিক্কির (from চিৎকার) *s.* scream.

চিটী *s.* small split bamboos laid lengthwise in the frame of a roof.

চিয়াল *s.* early aus rice-crop.

চুআ (from চুল), *s.* hair of the head.

চুঙ্গা *s.* a small water-way in a bund (= আওঁর).

চেচরাইতে *v. a.* to drag along on the ground.

চেঙ্গা *s.* male buffalo.

চোআ (pronounced soá), *see* চোপা.

চোইতে (from চষিতে) *v. a.* to plough.

চোঙ্গা *s.* husk (of paddy).

চৌআইলা (from চৌ-চতুর *four* and আলি *boundary*) *s.* land bounding on all sides the land in question.

চৌআলিয়া (from আলি) *s.* boundaries.

ছাইঁন (from ছাঁচি ?) *s.* eave of the thatch.

ছানি }
ছায়নি } *s.* wicker or cane work cover (around a glass jar).

ছিকা *s.* a kind of shelf.

ছিবা *s.* branch or sprout of bamboo.

ছেঁচ *adj.* charred.

ছৈলান *s.* wandering about.

ছোঁআ *s.* branches and sticks thrown into water to prevent people fishing there.

জমিতে *v. a.* to gather, rise up, collect (as water when its flow is obstructed).

জাগির *s.* teacher, tutor.

জাবরাইতে *v. a.* to clasp around the chest.

জালি *s.* woven purse, closed at its mouth by drawing a thread tight.

জিগত (loc. case of *pron.* যাহা) *adv.* where, in which place.

জিজ্ঞাসা বাদ *s.* asking, questioning.

জিত করিতে *v. n.* to persist.

জিদা *adj.* sent, despatched.

জুম্বরা, জোম্বরা, and জুম্বইর *s.* kind of umbrella or hood made of leaves, and suspended from the head over the back, (so as to leave the hands free).

জুর্ফা *s.* a bamboo split partially down, and fastened around with hoops, so as to form a round vessel, for holding things.

জেরবার করিতে *v. a.* to render responsible or liable. زیربار Pers. under a burden, responsible.

জরবারী *s.* ruining, breaking, injury.

জোন *s.* moon-light.

জোয়ার *s.* trench, rut.

জোরা *s.* (tidal watercourse ?) small nullah.

ঝলি *s.* a closely-constructed tatti, (through which one cannot see).

ঝাকি জাল *s.* circular fishing-net, thrown so as to fall in a circle on the water and sink.

ঝাড় ঝোড় *s.* scrub jungle.

ঝাপাইতে *v. a.* to cover (something) with (something else).

ঝুক দিতে *v. a.* to get before one, to anticipate one, get the start of one.

ঝোর *s.* small path.

টকটকাইতে *v. a.* to obstruct, hinder.

টহলুয়া *s.* a servant who does all the odd jobs in a kitchen.

টাকিয়া *s.* stem of a tree, trunk.

টান }
টার } *s.* recollection, remembrance.

টুনি *s.* post, stake.

টেঙ }
টেঙ্গ } *s.* thigh, leg (of an animal).

টেঙইয়া জাল a wedge-shaped fishing-net (pushed forward and downward).

টেম্বরা *s.* an open fence of upright and horizontal bamboos.

টেপা *s.* a small pot, with a hole in the bottom, used in making salt.

টোপা }
টোবা } *s.* small pond.

ঠাউর *s.* looking at, inspection, attention.

ঠাহর *s.* fancy, thought, opinion, (= خیال). With করিতে to recognise, know.

ঠেঙ্গা *s.* = চঞ্চল.

ডংগর *s.* double drum.

ডল *s.* flood.

ডুলা *s.* fish-basket.

ডুব *s.* a funnel made of bamboo for catching fish.

ডুবা *s.* bamboo hedge around a tank.

ডুমা *s.* small cloth, or scarf = Hind. gámcha.

ডুরিয়া *s.* fish-basket carried on the back between the shoulders.

ডেঙ্গা *s.* wall of earth surrounding a bári.

ডেঁআইতে
ডেঁআনিতে } *v. a.* to drive (cattle).

ডোঙ্গা *s.* four-sided basket (= চামুয়া).

ডোনা
ডোম } *s.* fisherman.

ডোমা *s.* kind of cloth with broad red border, worn by Musalmáns.

ডোল *s.* a large deep mat-basket for keeping rice or paddy.

ডৌলিয়া *adj.* (from ডৌল fashion, manner) of a kind, like; as কোন ডৌলিয়া of what kind? like what?

ঢল *s.* flood, rise of water, in a river.

ঢম্বল *s.* iron fishing-spear.

ঢাকাঢাক্যো *adv.* close by, very near.

ঢাকে *prep.* at the side, by the side.

ঢেমণী
ঢেমনী } *s.* a kept mistress.

তর (= তার পর) after that.

তরে *adv.* for, for the purpose of.

তাউক *s.* tobacco. [Mags.

তামি *s.* red-bordered cloth, worn by

তার *s.* bracelet for the upper arm.

তির *s.* cross-beam of a roof.

তুন *prep.* from.

তুপিয়া *s.* mound of earth at the side of a field.

তেঁহ
তে } *pron.* he, she.

তৈনত্তি (Arab. تعيناتى) *adj.* deputed, despatched.

তোআইতে *v. a.* to search, seek.

তোত্তিতে (?) *v. n.* to wake, be awake.

থাকি *prep.* from (ablative).

থান পাইতে *v. a.* to get notice (of a thing).

থিয়াইতে *v. n.* to wait, stand, remain.

থীইতে *v. n.* to stand: thus শীধ হই থীও "stand upright."

থেকিয়া *prep.* from.

দছাদছি pulling one another.

দল্যা *s.* salt in lumps or cakes.

দাঁ *s.* an oar, the blade of which is a separate piece of wood fastened on to the handle.

দাএল বালী *s.* a sort of beaded báli (*q. v.*)

দুপাদুপি pushing and pulling one another about.

দুম্মি *s.* a beetle for ramming earth down.

দুয়ারের মোখা (from মুখ) *s.* the frame of a door.

দোআইন্দা ? *s.* narrow path between two houses.

দোআধারা ঝলি *s.* a jhali made of split bamboos spread out and intertwined cross-wise.

ধর পড়াইতে *v. n.* to roll about on the ground.

ধাইতে *v. n.* to run away, flee.

ধাইল *s.* eave of a house.

ধারি *s.* open foot-path, foot-track.

ধুঁড়িতে *v. a.* to search for, seek.

ধুল
ধুলা } *s.* earth impregnated with salt.

নরচর *s.* difference of opinion, want of unanimity.

নাইয়র *s.* a wife's going to her father's house.
নাচি *s.* dancing.
নাডা *adj.* fastened, bound (as a door).
নাশী *s.* a drain.
নিছান *adj.* pulled out.
নিজ্জাম *adv.* excellently, well.
নোড়া (= পুতা) *s.* stone roller used in preparing spices.
পন্দ *s.* the semi-cylindrical mat-covering over a boat.
পটিতে *v. a.* to enter, go in.
পনা *s.* vegetation that grows on the surface of a tank.
পরক করিতে *v. a.* to store up.
পল *s.* (pala) a hemispherical basket, with a narrow mouth at the top, for fishing.
পসর } (= আলো) *s.* light, moon-
পহর } light; blaze, flame.
পাএবস্থা *adj.* alluvial.
পান্সি *s.* an oar, made of one piece of wood. Also পান্সোই.
পাছে *s.* stern (of a boat).
পাঞ্চলা *s.* assembly, gathering (for purposes of discussion).
পাটা (= শিল) *s.* flat stone on which spices are prepared.
পাড়া *s.* heap, pile.
পাড়ালিয়া *s.* inhabitant of a párá.
পাতা জঙ্গল low (grass) jungle.
পাতিল *s.* a low pot, similar to a টেপা.
পান *s.* boat hire.
পাল *s.* side, direction.
পালি *s.* bale (of cotton).
পিছকুলে, *adv.* at the back, behind.
পিটিতে *v. a.* to beat (the ground so as to smooth it).
পীছ মোরা বন্ধন fastening one's hands behind his back.
পুঙ্গি *s.* Mag priest (unable to read or write). Burmese *phungyi.*
পুছ করিতে *v. a.* to ask, question, interrogate.
পুতা (= নোড়া) *s.* stone roller used in preparing spices.
পুনি *s.* tank. Sansk. পুষ্করিণি
পুয়াইত্যা about 4 A. M., see ফইত্যা
পুন *s.* lime-pit, lime-kiln.
পুপতো ভাই father's sister's son.
পুপা *s.* paternal aunt.
পুপছাল (corrupted from পূর্ব্ব চাল ?) *s.* the Eastern part of Thana Satkaniya, east of the hills.
পেড়ুয়া *s.* basket for collecting cow-dung (= ওরা).
পেয়াল *s.* dry paddy grass.
পোইক্ষি = রেয়াল
পোকে *s.* a snake.
পোঁচিতে } *v. a.* to cut in a sawing
পোছিতে } manner.
ফইঁত্যা (loc. case) early in the morning, before day-break, see পুয়াইত্যা
ফরক *adj.* separate. Arab. فرق.
ফালাইতে *v. a.* to throw.
ফালি *s.* a square-shaped chili basket.
ফূআতো = পূপতো.
ফেণা = পনা.
ফোআইঁ *s.* an oar (= পান্সোই ?)
ফোইর *s.* a tank.
ফোতন *adv.* lying on one's back.
বণ্টক *s.* division, partition.
বদর *s.* shout, noise.
বয়লা *s.* a hollow kháru.
বর্গ *s.* concord, agreement.
বসতিতে *v. n.* to live, dwell.

বাইতে *v. a.* to pull, row (a boat); drag (a fishing-net).

বাইন *s.* scattering (seed).

বাউঁ *s.* bracelet.

বাউঁক *s.* piece of bamboo used for carrying things on the shoulder.

বাঁধিতে (with নৌকা) *v. a.* to build, construct.

বাঁশডুবা } *s.* bamboo thicket or clump.
বঁশডুগা }

বাণ (ভাণ ?) মারিতে *v. a.* to bewitch, enchanter.

বাদ *adv.* without. Arab. بعد after.

বাদে *adv.* besides, except. *id.*

বান্দা *s.* pledgment, mortgage.

বালাম নৌকা a large boat, bound and fastened with bamboo and cane.

বালী *s.* a nose-ring (fastened through the septum).

বাসুয়া *s.* inhabitant, resident.

বিওঁ (= বাউ) *s.* a fathom.

বিওন্দি জাল *s.* large fishing-net.

বিচোইন *s.* hand-pankha.

বিজরা *adj.* unmarked, unstamped, unbranded.

বিঝারা *adj.* illicit, unlicensed.

বুঝ করিতে *v. n.* to decide.

বেড় *s.* ditch, channel.

বেনা *s.* torch of twisted straw.

বেব্যাক } (from বেবাক) *adj.* all,
ব্যাগ } every.

বেশ *s.* property, wealth.

বৈটা *s.* a basket, holding 8 áṛis of [paddy.

বৈয়ম *s.* large glass jar with a narrow mouth, enclosed in wicker-work (ছানি) with a wickerwork handle; a tall jar.

বোমুতা *s.* the threads of a weaving instrument (রাজ).

বোর (bora) *s.* a (pán) garden.

বোলাক *s.* gold nose-ring with pendants.

ব্যাম } (corrupted from ব্যামোহ) *s.*
ব্যামু } illness, sickness.

ভাট *s.* handle (of a knife).

ভিন্টা *s.* mud floor of a house.

ভোট *adv.* under, below.

মগ্‌রিব *s.* time for lighting the lamp, about half-an-hour after sunset. Arab. مغرب sunset, west.

মরা পড়িতে *v. n.* (to be killed, *but generally*) to be drowned.

মাগিতে *v. n.* to beg, live by begging.

মাগী *s.* young woman, wench; mistress, leman.

মাঝি *s.* headman, foreman (of a boat, or of coolies).

মাটিয়াল *s.* a man who digs earth.

মাটীল *adj.* earthen.

মাতন *s.* word, speaking, question.

মাত বোল *s.* talking, conversation.

মাতিতে *v. n.* to speak, utter sound.

মিস্তরি *s.* barber; carpenter.

মুই (from মুখি) facing towards. It is compounded with উত্তর, পূর্ব্ব, দক্ষিণ and পশ্চিম; thus with the two former, উন্মুই northwards, and ফুমমুই eastwards.

মুরা *s.* a hill.

মুলুক জালাইতে to make the place hot, to have the authorities down on one, *lit.* to set the country (Arab. ملك) on fire.

মেজা *s.* ground, floor.

মেলা *s.* feast, banquet.

মেলা যাইতে (mĕlá) *v. n.* to go along, walk along.

যোগাড় *s.* help, aid (by money or advice).

রওয়াজা *s.* a Mag headman of a village.

রাউলি *s.* Mag priest and teacher.

রাগিতে *v. n.* to become angry.

রাজ *s.* weaving instrument.

রাণ (Pers. ران thigh) *s.* the side of the thigh.

রাষ্ট *adj.* well-known, manifest, plain, clear. Pers. راست true.

রেয়াল *s.* kind of bracelet (= পোইঞ্চি).

লক্ক } *prep.* close to, near.
লগালগি }

লগে } *prep.* with (with gen. case).
লয় }

লবন রাঁধিতে to make salt by boiling off the water from salt-water.

লম্বরী *s.* peon; from English 'number', each peon having a badge with his number on it.

লম্বা ঘর *s.* prison, jail.

লয় *s.* Sir; it is used interrogatively when a person does not understand what is said to him, "Sir?".

লয় *prep.* with — *see* লগে.

লাই (corrupted from লাগি?) *prep.* by reason of, on account of.

লাই *s.* basket.

লাইভাই *s.* an outer or secondary verandah.

লাগ পাইতে *v. a.* (= ধরিতে) to catch, seize.

লাগিয়ত *adj.* leased out, sublet.

লাগিয়ত করিতে *v. a.* to lease out (land); to transplant (paddy).

লাভিয়া *s.* verandah.

লামাত (from নামিতে) *prep.* below, down-stream.

লেঙ্গটা (from নগ্ন) *adj.* naked.

লেটাইতে } *v. a.* to lay down or place on the ground.
লেডাইতে }

লেডণ *adv.* lying on one's back.

শয়িতে *v. n.* to lie down.

শরপরে *s.* kind of hard light mud that covers a field.

শিরে *prep.* upon.

শীক *s.* flame of fire.

শুখ্না *adj.* dry, dried up.

শোল *adj.* hollow.

শ্যালোক (from শ্যাল) a person related to one through one's wife, wife's relation.

সকালে *adv.* quickly, without delay.

সতাই *s.* step-mother.

সতিনী *s.* rival wife, co-wife. Sansk. সপত্নী.

সতীঝী *s.* co-wife's daughter.

সরারতি করিয়া, not acting willingly. Arab. شرارة perversity.

সরে *adv.* commonly, ordinarily.

সরেঙ্গা নৌকা *s.* a dug-out, plain open boat made out of a single tree.

সাতাতো *adj.* born of the same father, but a different mother.

সাধ্য *adj.* able, capable.

সারক *s.* frame of the roof on which the thatch is laid.

সুকি (= সিকি) *s.* 4-anna piece.

সুগমমতে (from গম *well*) *adv.* very well.

সুরিতে *v. a.* to sweep.

সোরজদা *s.* salt-water inundation.

হউর (= শ্বশুর) *s.* father-in-law.

হউড়ী (= শাশুড়ী) *s.* mother-in-law.

হকলিন (= সকল গুলিন) everything.

হুশ্বাস হইতে	*v. n.* to awake.
হাঁঝ হাঁঝনিয়া হাঁঝিনী	(from সন্ধ্যা) *s.* evening, twilight.
হাটি	*s.* ridge in a chili field.
হাড়িতে	*v. a.* to uproot.
হাতত (hátata) (= সাতাতো) ভাই	*s.* half-brother.
হাতা	*s.* cloth hand-bag.
হাতীনা	*s.* verandah.
হাথা	*s.* ladder.
হাম্‌তমাম হাম্‌ত.ম	*s.* jointship in food and business, commensality. Pers. هم طعم eating together.
হাল মেলানির সময়	time of unyoking the plough, about 10 A. M.
হালিতে	*v. n.* to decline, to diminish; বেলা হালি গেল it was past noon.
হালয়া	*s.* ploughman.
হালয়াভাত্তি	*s.* the time when people stop ploughing to take their morning meal; about 10 A. M.
হিয়ন হিয়ানে	*adv.* here, in this place.
হীন	*pron.* that.
হুআঁরে	*prep.* with, together with.
হুর (= শোর)	*s.* noise.
হেহেন্ড হেহেণ্ড	*adv.* there, in that place.
হেহেতে	*pron.* he, she.
হোথাং	*adv.* lying on one's back, supine.
হোন্দি = কোন্দি	*q. v.*

Birthday of the Emperor Jaláluddin Muhammad Akbar.—By KAVI RÁJ SHYÁMAL DÁS, M. R. A. S. *and* F. R. Hist. Society.

[Translated by Babu Ráma Prasád.]

I. VIEWS OF DIFFERENT AUTHORITIES.

In the course of my constant references to the histories of India to gather information for my forthcoming work on Rájpútáná, I have found out that Persian authors are not unanimous as to the date of Akbar's birth.

(1.) Abul Fazl, Akbar's Minister says :—"Hamidah Bánú Begam, queen of Húmáyún was delivered of prince Akbar at Amarkot on Sunday night, the 5th Rajjab A. H. 949* (= Kartik Sudi 6th, Samvat, 1599 = 15th October, A. D. 1542)."

But he is not certain of the truth of this : he says that two astrologers (probably not living when Abul Fazl wrote,) Mauláná Chand and Ilias were present at Amarkot when the prince was born ; and he gives several horoscopes prepared according to the Greek (Yunáni) and Hindu systems of astrology of the prince, which do not agree, some of them marking the sun in Libra and others in Scorpio ; some mentioning the birth to have taken place in the Sinha (Leo) Lagna, and others again in Kanyá (Virgo).

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* Akbarnamah, Vol. I, pp. 31—53.

The author does not mention the annual birthday festivals as he does those of the accession day.

(2.) Nizámuddin Bakhshi assigns the same date for Akbar's birth in the 'Tabaqati Akbari' as Abul Fazl, who has also been followed by Badáuni in the 'Muntakhib-ut-Tawárikh,'

Their statements as high officials of the Empire, were taken to be correct and trustworthy, and adopted by the authors of the 1. Iqbál Náma-e Jahángiri; 2. Tarikh Farishta; 3. Muntakhib-ul-Lubáb; 4. Sair-ul Mutákḥarin and 5. Mulakḥasut Tawárikh.

(3.) The author of the 'Miráti Aftáb Numá' gives no positive opinion on the point in question, but describes it in the following doubtful strain :—

"In the year A. H. 949 according to some accounts, or in A. H. 950 as others would have it, at Amarkot was born Jaláluddin Muhammad Akbar of Hamidah Banú Begam* a descendant of Ahmad Jám." "According to the Akbarnáma the auspicious birth of the prince took place at Amarkot on Sunday night the 15th Rajjab A. H. 949, the sun being at the time in Scorpio."

(4.) On leaf 44 of MSS. Tazkirat-ul Wáqyát the author Akbar Jauhar who was Aftábchi or the ewer-bearer of the Emperor Húmáyún writes :—

"While the Emperor Húmáyún was encamped on the banks of a pond, at a distance of 12 kos = (24 miles) from Amarkot on the way to Bakkar, a messenger arrived in the morning from the former place with the joyful intelligence of the birth of a son and heir; and delivered his charge in the following terms :—

"The Supreme Being has been pleased to bless your Majesty's royal household with a fortunate prince," which highly pleased the Emperor.

This auspicious event happened on the night of Saturday the 14th of Shábán A. H. 949 = 23rd November, 1542 = Margsir Sudi 15th Samvat, 1599.

"The moon of the 14th night (full moon) is called Badr, in consequence of which the child was named Badr-ud-din which signifies nearly the same thing as Jaláluddin, the name by which Akbar is commonly known.

"When the Emperor had finished his devotions and thanksgivings to the Creator, the chiefs came and offered their congratulations.

"His Majesty then asked the author of this (Akbar Jauhar) what articles he had given him in trust ?

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* Miráti Aftáb Numá MSS. leaf 212.

"Two hundred Sháhrukhi coins, silver gauntlets, and one pod of musk," was the answer. Further "that the coins and the gauntlets were made over to Khudáwand Khán."

"His Majesty asked the reason of my giving to another person the things that had been entrusted to me.

"A due execution of your Majesty's order," was the response.

"His Majesty sent for the pod of musk which was immediately produced.

"The Emperor asked for a China plate, and having broken the pod in it, distributed it among the nobles, in demonstration of the joy felt at the prince's birth.

The courtiers expressed their good wishes and congratulated his Majesty on the occasion."

(5) The English authorities have simply followed Abul Fazl without further, enquiry, *e. g.*

1, Erskine—History of India under Baber and Húmáyún, Vol. II, p. 254.

2, Dawson—History of Hindústán, Vol. II, p. 160.

3, Sir H. M. Elliot—History of India, Vol. I, p. 318.

4, Elphinstone—History of India, p. 453.

5, Mill.—Gives no date.

II. OPINIONS OF LIVING SCHOLARS.

The statement of Akbar Jauhar makes the birthday fall about 5 weeks (the period intervening between 5th Rajjab and 14th Shábán) after the date assigned by Abul Fazl.

This difference put me into a dilemma, and I had to put off inserting the date of Akbar's birth in my book till I could satisfy myself of the truth of one or other of the statements.

With this view, the first step I took was to put the question to the Persian scholars of the day, through the columns of the "Khair Khwáh-e Alam" (a newspaper published in Urdu) in an article contributed to that paper by my friend Maulavi Ubaidulla Farhati, but without result.

Next, I referred to the under-mentioned learned gentlemen famed for their knowledge of Indian History:

1. Rájá Siva Prasád, C. S. I.
2. Maulavi Sayyid Ahmad Khán, C. S. I.
3. Maulavi Anwárul Haq (Mir Munshi in the office of A. G. G. for Rajputáná). I am very glad to say, Rájá Sivá Prasád, to whom I am much indebted for his assistance confirms the statements of Abul Fazl by quoting the same date, 5th Rajjab A. H. 949, from some of the Persian works alluded to in the foregoing pages, and adds weight to their state-

ments by proving the same date to be mentioned in the horoscopes of Akbar, copies of which are in the possession of trustworthy old Hindu astrologers.

I am glad to be able to say I have also got copies of the horoscopes of the Mughal kings and of the Rájás of some of the States in Rajputáná, *e. g.*, Udaipur, Jaipur, and Jodhpur, &c., from well-known astrologers in Ujjain and other places, who follow astrology as an hereditary profession; but no reliable horoscope of Akbar has been found. Lastly, I relied on the labours of Dr. Hunter who writing of Amarkot in his Imperial Gazetteer (Vol. IX, p. 182) says:

"Here, in October 1542, was born Akbar the son of Húmáyún, the exiled Mughal Emperor, then on his way to Afghánistán. The presumed spot of Akbar's birth is marked by a stone-slab, with an inscription."

This passage inspired me with the hope of gaining my object. Consequently, I addressed a letter to my well-known friend, Sir Edward C. E., Bradford, K. C. S. I., Agent to the Governor-General for Rajputáná, requesting him to secure for me a copy of the inscription. He kindly complied with my request, and the following reply was thankfully received this month :

(True Copy.)

"*Camp Ajmere*, 1st *December*, 1885.

DEAR SIR,

With reference to your letter of the 1st October, Sir Edward Bradford has asked me to send you the enclosed paper received from the Deputy Commissioner Thurr and Parkur containing copy of the inscription on the stone at Umarkot.

To
KAVI RAJ
SHYAMAL DASS,
Oodeypore.

Yours truly
(Sd.) ELLIOT COLVIN.

(Copy of the enclosure.)

"Sir,

With reference to your letter, dated the 26th instant, I beg respectfully to state that the stone is situated about two miles north-west of Umarkot with the inscription—

هن هنڌ ۾
محمد اکبر بادشاه
جائو سنه ٩٦٣ هجري ۾

Akbar Bádsháh was born in the year 963 Hijri."*

Amarkot,
30th Oct., 1885.

To
K. B. Kazi
Faiz Muhammed.

I beg to remain
Sir
Your most obedient servant
UMEDALI K. MUNSHI,
Head Master A. V. School, Amarkot.

The year Hijri 963 (= A. D. 1555-56), however, is not that of Akbar's birth, but that of his accession to the throne; the date of his birth is not given at all: the inscription is thus valueless, and was most probably written at a far later date.

Thus left to my own resources, I feel in duty bound to submit my humble views, the outcome of my attempts at settling the question, for the approval of the learned members of the Asiatic Society of Bengal, to whom this Paper is intended for a "New Year's Present."

III.—THE AUTHOR'S VIEWS.

I am led to believe the statement of Akbar Jauhar to be correct and trustworthy on the following grounds:—

(1) He was a contemporary of Humáyún, his constant companion in all reverses of fortune, and the Emperor reposed full confidence in him.

(2) He was present when the glad tidings of Akbar's birth were conveyed to Humáyún, who took from him the musk-pod to distribute it among the courtiers.

Under these circumstances, he (Jauhar) could not possibly have recorded an incorrect date for the Prince's birth.

IV.—OBJECTIONS ANSWERED.

(*a*) It cannot be assumed that the scribe made a mistake in transcribing the MSS of the Tazkirat-ul Wáqyát long after the date of its composition, for, in it after writing the date and month the author explains the name Jaláluddin (Badruddin) to be due to the birth having taken place on the 14th, the moon of which (being full) is called Badr.

This shows that the 14th could not possibly have been written by mistake instead of any other date.

(*b*) The argument that Akbar assumed the title of Jaláluddin on succeeding to the throne, does not hold good; because, according to Jauhar, it was given to him on the very day of his birth, a statement supported by the "Mirati Aftáb Numá' of Sháh Nawáz Khán, who says :—

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* [The language of this inscription, or so much of it as does not consist of proper names, is Sindhi हिन थंध में = 'in this place' जाथो = 'was born.' में is expressed by mim with kasra tanwin, and ध by د with two dots over it. ED.]

"The fort Jae-Sháhi (now known as Jalálábád) was given by the Emperor Muhammad Humáyún to Prince Jaláluddin Muhammad Akbar in jágir for his table-charges during princehood when Humáyún had been exiled from India by the Patháns, and had established himself in Cabul after punishing his brothers (relatives).*

"Since it came into the prince's charge, it flourished and increased in population, and was called after him Jalálábád."

From this it is inferred, that the birth took place on the 14th date, whence the name Jaláluddin was given to the prince.

The date recorded by Jauhar is therefore unquestionable.

Now, the following account of the village of Jún to which Humáyún had his Queen Hamidah Bánú Begam and the prince Akbar brought from Amarkot) by Jauhar, proves that the birth did really happen in the month of Shábán :—

"Several bands of robbers had to be encountered near the village of Jun; Sheikh Ali Beg returned after putting them to flight. The Emperor halted in a garden adjoining the village, and ordered entrenchments to be thrown up round it: then he sent one of the chiefs to Amarkot to bring the young prince, the females and the servants. On the 20th Ramzán the prince arrived, and had the honour of being embraced by his Majesty for the first time on the 35th day of his age."†

This proves to a certainty that the prince was born on the 14th Shábán.

A few lines further on, the author mentions the Roza or fast, from which the inference is drawn that the prince did really arrive in Ramzán, the month when the Roza or fast is kept.

V.

What led the authors of the 'Akbar Namah,' the 'Tabaqáti Akbari, and the 'Muntakhib-ut-Tawárikh' to record the 5th Rajjab, Sunday instead of the true date, 14th Shábán, Saturday?

My explanation may be embodied in a single term, superstition, still I should like to say something in detail.

There is a couplet enjoining on the Hindús to conceal nine things :—

आयुर्वित्तं गृहच्छिद्रं मंत्रमैथुनमौषधौ ।
दानमानापमानञ्च नव गोप्यानि कारयेत् ॥

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* MSS. Miráti Aftáb Númá, p. 212.

† MSS. Tazkirelul Wáqyat, leaf 45.

that is, 1, age, 2, wealth, 3, defects in one's household, 4, mantra (Vedic or Tantric), 5, coition, 6, medicine, 7, charity, 8, honour and 9, dishonour should be concealed.

Now, the first of these with which we are immediately concerned, is still strictly observed by well-to-do Hindús, of whom only 10 per cent. of enlightened views would ever dare to lay aside this rule. The annual birthday festivities are in most cases held a day or two previous to or after the actual birthday; and if the date is published in this way, the year of birth is kept a profound secret. Horoscopes of the nobility and gentry are always entrusted to confidential family-priests, who never betray their charge, or are at least expected not to do so.

The writer has personally observed people sometimes accusing their enemies of practising witchcraft against the life of some person; and to confirm the charge brought by them, the accusers try to produce fabricated horoscopes bearing special symbols, and a puppet figure of the proposed victim, from the houses of the parties accused.

The Mughals borrowed these superstitious notions from the Hindús. This is corroborated by the account, my able friend Major (now Colonel) John Biddulph gives of the superstitious observances current among the tribes of the Hindú-Kush in his book of the same name, under the headings:

1, constellations, 2, earthquakes, 3, fairies and demons, 4, magic charms and 5, divination* &c., &c.

From his description of these things it is evident that the people of Central Asia and the Tibetan regions have not, in spite of their conversion to Islám, given up the customs prevalent among the Aryan Hindús.

The Mughals consulted good or bad omens before important undertakings, as for instance—

(1) On the eve of the battle at Fatehpur Sikri between Bábar and Maharána Sángá (Sangrám Singh) in S. 1584 (= A. D. 1527), the astrologer Sharif announced that the planet Mars being in the van, the Emperor's defeat was certain. Bábar did not care a fig for the prophecy, seeing it was against his purpose to believe it: but all his peeple were utterly discouraged at the astrologer's remark, and their hearts failed them.

(2) When prince Humáyún was taken seriously ill, Bábar was advised to sacrifice the thing most precious to him, for the prince's recovery. He proposed to go round the prince's bed, wishing the sickness might leave the prince and visit his own person. The courtiers, believing the Emperor would thus stake his life, tried to persuade him

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* Tribes of the Hindú-Kush, pp. 94—98.

against the proposal but in vain, as Bábar would not listen to their counsel. The consequences of such a proceeding are thus summed up by Abul Fazl:

"From the very moment that the Emperor did this, the prince began to recover; the malady descended upon Bábar resulting in his death."*

(3) "Jiji A'nagah"—one of the nurses of prince Akbar, being on bad terms with another nurse Máhum A'nagah by name—was very uneasy when accused of practising magic on the prince in the eighth month of his existence, thereby charming him to refuse to be nursed by any other woman than herself; but as the legend goes, the young prince to remove her anxiety, one day consoled her thus:—"Be of good cheer; I will not cease to be nursed by you, and on growing up I will hold your children in due regard."†

(4) Speaking of a talismanic knife presented to Akbar by the Rája of Kajli in the 14th year of the Emperor's reign, Abul Fazl writes:—

"The knife is still kept in the Imperial Treasury, and I have several times heard the Emperor say 'More than two hundred persons on the point of death from illness, recovered instantly on touching it.'"‡

(5) "Prince Salim born with the blessings of Shekh Salim Chishti, after the Emperor had lost some children, was not allowed to be brought to the Emperor's presence for two months."§

Abul Fazl writes this in a roundabout way, but the true reason probably was the advice of astrologers.

There is not the least doubt of Akbar's belief in the miraculous powers of Shekh Salim. On one occasion the Emperor travelled on foot from Agra to worship at the sacred shrine of Khwájá Muin-ud-din Chishti in Ajmere; and again from Chitore to offer thanksgiving for his victory gained there.

It is needless to multiply proofs in support of the prevalence of superstitious customs among the Mughals. Superstition having a stronger hold upon the minds of females than those of males, I fancy Hamidah Bánu Begam, Akbar's mother and his guardian from his infancy till long after his accession to the throne, was possibly instrumental in keeping his birthday a mystery, as no one could be more anxious for his safety. She might have reported the 5th Rajjab to Abul Fazl and other courtiers, as it is not easy to conjecture that they could have remembered the birthday during the troublous times when Akbar was born—the Begam's report was trusted, and horoscopes were prepared accordingly.

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* Akbar Namah, Vol. I, pp. 144–145.

† Akbar Namah, Vol. I, p. 225.

‡ Akbar Namah, Vol. II, p. 431.

§ Akbar Namah, Vol. II, p. 435.

There is, however, one other alternative; that is, that the authors of the "Akbar Námah," the "Tabaqáti Akbari," and the "Muntakhib-ut-Tawárikh" might not have liked to publish the true date even if they knew* it—to show their care for their master's safety, and thus to evince their loyalty to him, who was also swayed by superstitious feelings particularly till his fortieth year.

VI.

It might be questioned why attention has not been directed to the account of the Emperor Jaláluddin Muhammad Akbar's birth recorded by Akbar Jauhar in the Tazkirat-ul-Wáqyát?

This could not be, because Jauhar was a person of low position, literate enough just only to enable him to read and write in the ordinary routine of business: he put down a record of the events just as they passed, to serve the purposes of a private record, but written with the greatest sincerity.

As he was not learned, his production has no claims to erudition, like those of the other authors, whose books were generally studied.

Jauhar's work probably lay as a hidden treasure for years and years after his death, and was brought to light only when European scholars commenced their researches, and it was they who appreciated it fully: as a happy result of this we are placed within reach of manuscripts of the work.

Akbar Jauhar had no interest in altering the birthday of Akbar, for as I have already said his were private records; moreover he has corroborated his statements fully, never losing the thread of the narrative.

Therefore, I conclude that the Emperor Akbar was born on Saturday the 14th Shábán in the Hijri year 949 [corresponding to the 15th of the bright half of Margsir, 1599 of the Vikram era = 23rd November A. D. 1542] as recorded in the "Tazkirat-ul-Waqyát" by Akbar Jouhar, Humáyún's ewer-carrier.

I trust the worthy members of the Society will express their own opinions on the points here discussed; and I shall very thankfully insert in my work, the result of their researches if satisfactory.

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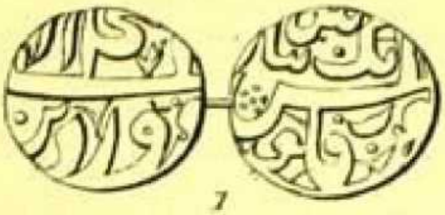
* This is probable of Abul Fazl, who after writing several horoscopes of Akbar that do not tally, says:—

"It is but meet that everybody should not know the actual account of the birthday of a sample of creation (like Akbar).



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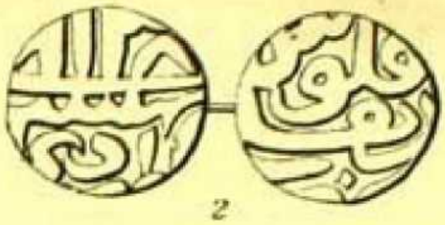

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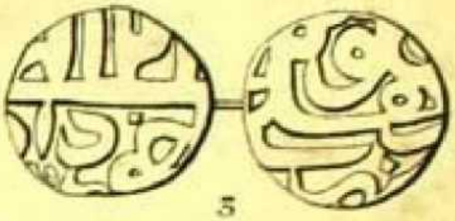

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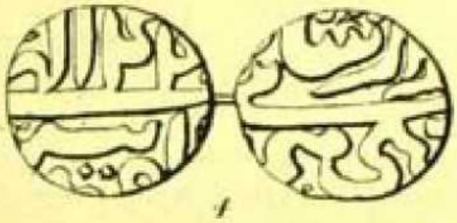

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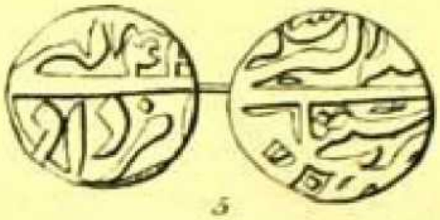

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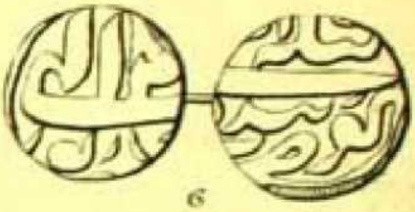

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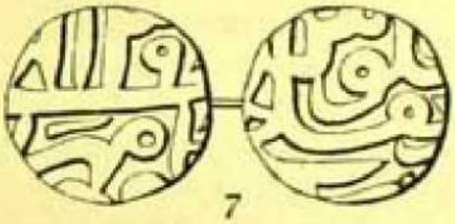

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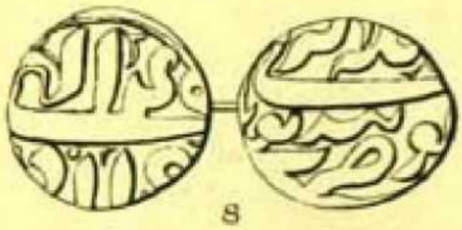

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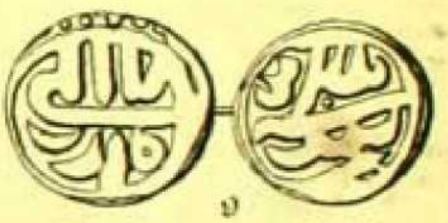

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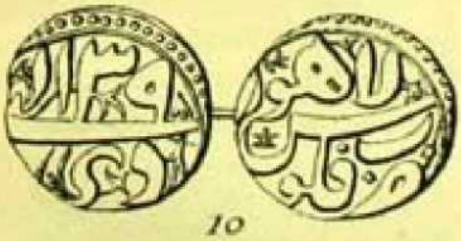

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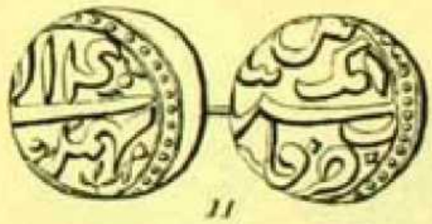

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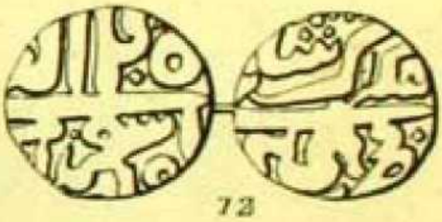

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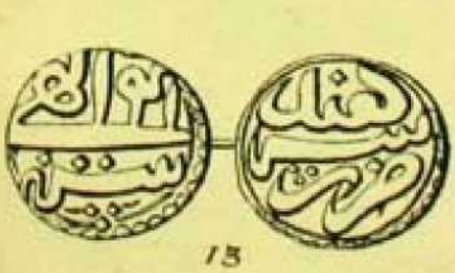

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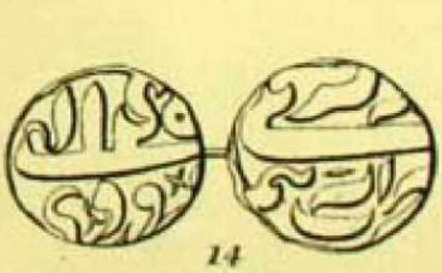

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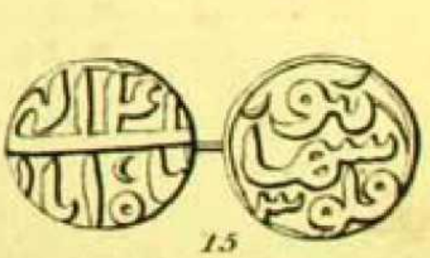

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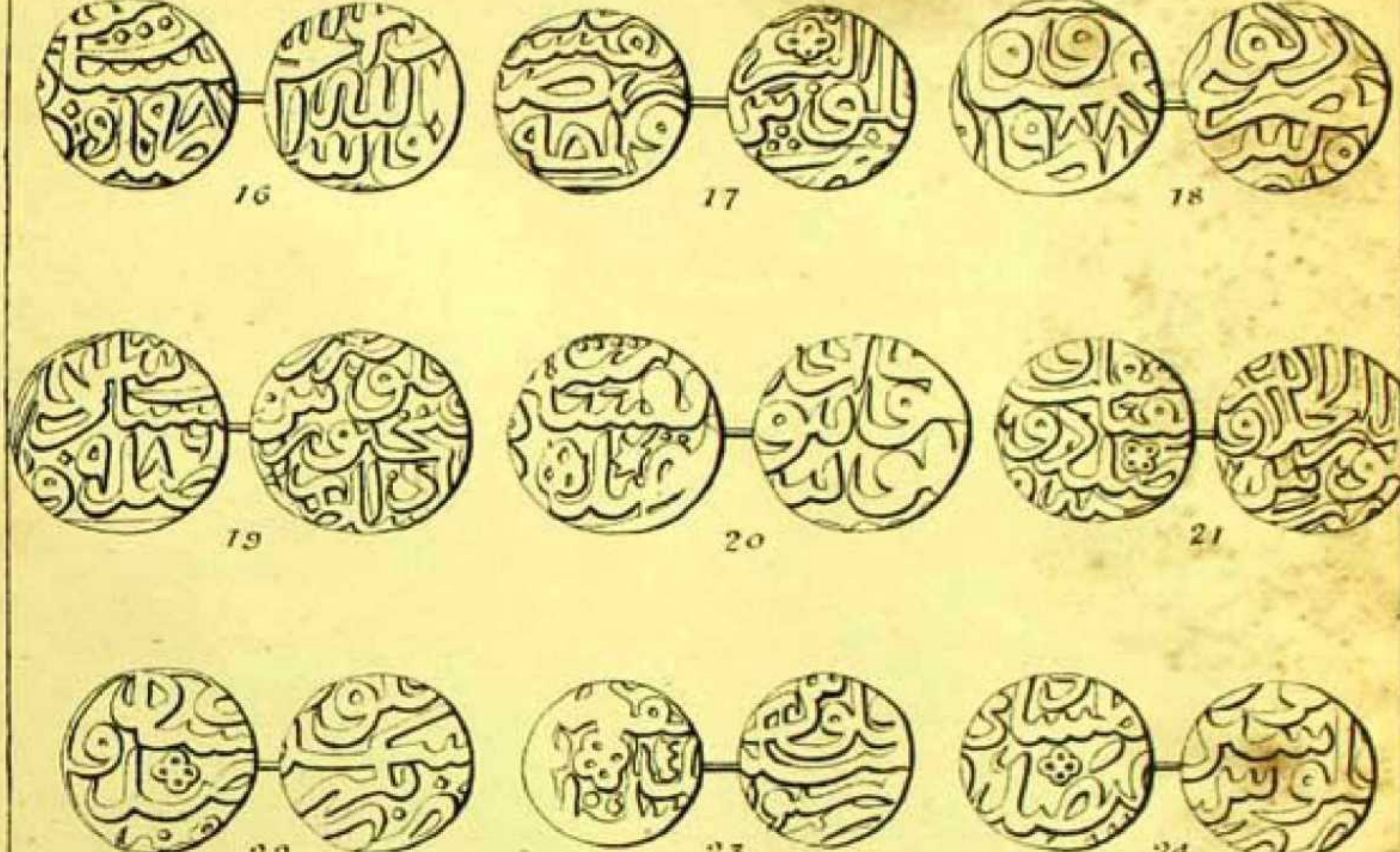
PHOTOZINCOGRAPHED AT THE SURVEY OF INDIA OFFICES, CALCUTTA, JANUARY [illegible]

COPPER COINS OF AKBAR.

Journ., As. Soc. Bengal, Vol. LV, Pt. I, for 1886.

PLATE I



PHOTOZINCOGRAPHED AT THE SURVEY OF INDIA OFFICES, CALCUTTA, JANUARY 188

COPPER COINS OF AKBAR.

JOURNAL

OF THE

ASIATIC SOCIETY OF BENGAL.

Part I.—HISTORY, LITERATURE, &c.

No. II.—1886.

The Decline of the Sámánís and the Rise of the G̲h̲aznavís in Máwará-un-Nahr and part of K̲h̲urásán. (With some unpublished coins.)—*By* E. E. Oliver, M. I. C. E., M. R. A. S.

To Englishmen in India the history and geography of Central Asia are matters that have always commanded considerable attention, and of recent years "the progress of events" has forced them into recognition as matters of interest, possibly vital interest, to Englishmen everywhere. But beyond the outlines of certain well known historical features and a few famous names, our knowledge is still very indefinite and uncertain, and an attempt to fill in the details for any particular time or State, difficult in the extreme. The history of the Middle Ages in the East may be said to be still unwritten. The whole is made up of struggles for supremacy by various races, conflicting tribes, and petty chiefs, who founded innumerable dynasties, the very names of which, with the cities and territories they ruled, are now unknown, or at best can be traced by evidence the most slender and obscure.

Not the least valuable among such evidence is the numismatic. "The coins of the Muslim East", as Mr. Stanley Lane Poole writes in a recent work, "do not so much recall history as make it." The right to coin money in his own name, and of being mentioned in the Friday prayers was one of the most cherished privileges of every Muhammadan who could in any way get himself recognised as a ruler, and, fortunately for history, his vanity in this respect has made his coinage richer in names, places, and dates, than perhaps any other. His own, his father's, and his son's names, the contemporary Khalífah, the name of his Suzerain and of his father, his titles, the place of mintage, the date, and sometimes even the month, are occasionally to be met with on the same coin; a little history in itself which as a check on the native chronicles becomes invaluable.

Comparison of such evidence on a sufficiently large scale would in time enable us to clear up the history of many now entirely obscure periods. Such comparison is, however, only possible under the most exceptional circumstances, discoveries of large hoards of coins are very few and far between, and though from time to time a few worn coins with strange Kufic inscriptions of curious interest do find their way to the bazars of Northern India, they are of course rare, and collectors being now so numerous, it is highly improbable that sufficient will fall to one individual to serve any useful purpose. The Indian official is moreover handicapped in many other ways, by the want of books of reference, and of information as to what has been done already, and still more by the want of time for anything outside his immediate work at the State mill. The most practical suggestion is that of Mr. Stanley Lane Poole in the last number of the Numismatic Chronicle to compile from all sources a History of the Muhammadan Empire as established by coins, comparing the leading cabinets of the world. And for the purpose of such a *Fasti Arabici* every coin accurately described may prove of value. Such a reason may perhaps serve as an excuse for the publication of the few I have met with, in preference to waiting in the probably vain hope of completing a series.

If not indeed to make such description intelligible, at any rate to give something of interest to the dry numismatic bones, it is desirable to make some effort to cover them with what has been so far ascertained of the history of their whilom owners, and at the risk of trespassing on ground already explored by past masters in the art, I have endeavoured to bring together in a brief and imperfect sketch an outline of the decline of one and the rise of another dynasty on the banks of the Oxus.

Máwará-un-Nahr, literally "what is beyond the River," is perhaps not so convenient a term as Transoxania, or the Greater Bukháriá of old European writers, but is more accurate. By it may be understood the territory bounded on the North by Táshḳand, on the East by Farghánah or Khoḳand, on the South by Balkh, and on the West by Khwárazm or Khiva; of which the capital was Samarkand, and under the Sámánís, Bukhárá. The Sámánis themselves were originally natives of Khurásán, and incorporated their own heritage there with their new dominions, some portions more or less of Khurásán at least so remaining till the fall of the dynasty.

The authorities used are mainly the Ṭabaḳát-i-Náṣiri of Minháj-i-Siráj, with Major Raverty's notes, the Kitab-i-Yamíní of Al Utbi. Vambéry's History of Bukhárá, with the selected translations from other chroniclers to be found in Elliot's Historians of India. And it is perhaps needless to add that what follows here has pretensions to nothing beyond being a sketch.

Asad bin Abd-ullah "the Good and Friend of the oppressed," Viceroy of the Khalífah in Khurásán, was implored by a nobleman of Balkh, named Sámán, one of the remaining followers of Zoroaster, to assist him against enemies who had expelled him from his city. Asad took up this nobleman's cause and reinstated him in his home, upon which Sámán showed his gratitude by embracing the faith of Islam, and named his first son after his protector, Asad.

This Asad had four sons, who following their father and grandfather's new creed devoted themselves to the cause of the Arabs, and rapidly rose to power and fame. Their swords were needed in the cause of the Faith, and the Khalífah Mámún promptly recognized their "talents, capabilities, bravery and innate nobility of mind," and conferred territories upon them. To Núh was granted Samarḳand, to Aḥmad, Farghánah to Yaḥyá Shásh,* the modern Táshkand and Isfanjáb,† and to Ilyás, Hirát. This was in 204 H. when Ghassan bin' Ubbád was the Khalífah's Viceroy in Khurásán. Succeeding Khalífahs confirmed the grants, the government of Samarḳand passing at Núh's death to his brother Aḥmad, who, of all the brothers appears to have been the most sagacious, energetic, and powerful. In addition to Farghánah the whole of Káshghar and Eastern Turkistán to the frontier of China is said to have come into his hands, and his fame, as one of the most upright and best Princes of the dynasty "was celebrated throughout Irán and Turán." He died at Samarḳand in 216 H. and was succeeded by Naṣr, one of a family of nine sons.

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* Shásh was also the name of the territory in Máwará-un-Nahr on the Jaxartes, the inhabitants of which were Musalmáns of the Ghuzz and Khalj tribes.

† A city towards Turkestan.

Naṣr I 261—279 H.

A man described as of many virtues, but of weak and suspicious nature, who to a great extent was indebted to the support of a younger brother, Ismá'il, for the establishment of his throne. The dynasty of the Ṭaḥirís* had closed with the deposition of Muhammad (*a*) in 259 H. but there were still powerful members of the family, who with others were rival claimants to the Sámáni family lands. Husain bin Ṭaḥir(*b*) had been plundering and laying waste Bukhárá. Ya'ḳúb bin Laiṣ(*c*), Saffári, had among other successes taken Hirát in 256-7 H. Níshápúr and Bukhárá in 259 H., and the inhabitants of all these territories were split up into innumerable parties. Especially was this the case in Bukhárá where certain of the nobles applied to Naṣr for protection. Ismá'íl was forthwith despatched and made his entry as Naṣr's representative in 260 H., the latter's name being forthwith substituted in the Khutbah (Friday prayers) and Sikkah (money issue) for that of Ya'ḳúb bin Laiṣ. The government of the territory was formally conferred on Ismá'íl in 261, who became universally popular, his popularity being materially increased by a severe defeat inflicted on Husain bin Ṭaḥir who had advanced on a fresh plundering expedition. He was too popular in fact to please Naṣr, who now tried to depose him, and was only prevented by the intervention of mutual friends. Naṣr still jealous and suspicious, soon sought new cause of quarrel and in 272 H. moved against his brother with a large army. Ismá'íl was joined by his friend and ally Ráfi' bin Harṣamah who had been made the deputy governor of the Khalifah in Khurásán.† For the time being hostilities were avoided and in 273 Ráfi' managed to patch up a peace, but within 15 months the quarrel was revived and a fierce and obstinate battle

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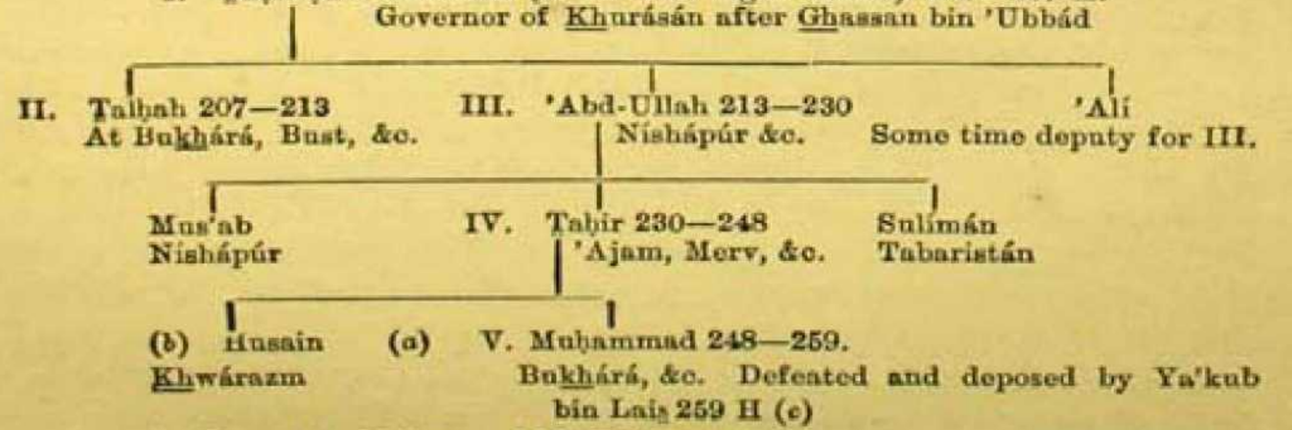
* The Genealogy of the Ṭaḥirís was as follows :


I. Ṭaḥir-ẓú-l-Yamínain (of the two right hands) 205—207 H.
Governor of Khurásán after Ghassan bin 'Ubbád
II. Ṭalḥah 207—213
At Bukhárá, Bust, &c.
III. 'Abd-Ullah 213—230
Níshápúr &c.
'Alí
Some time deputy for III.
Mus'ab
Nishápúr
IV. Ṭaḥir 230—248
'Ajam, Merv, &c.
Sulímán
Tabaristán
(b) Husain
Khwárazm
(a) V. Muḥammad 248—259.
Bukhárá, &c. Defeated and deposed by Ya'kub bin Laiṣ 259 H (c)

† Deputy to Muḥammad bin Ṭaḥir.

took place (275 H.) in which Naṣr was entirely defeated and taken prisoner. The victorious Ismá'il showed the greatest generosity and respect to his brother as head of the Sámáni house, forgave him, and induced him to return at once to Samarḳand, remaining his lieutenant in Bukhárá. For the next few years Naṣr remained quietly at Samarḳand where he died on the 22nd of Jumádí-ul-awwal, 279 H.

ISMÁ'ÍL 279—295 H.

Ismá'íl assumed the government of Máwará-un-Nahr, as of all the territory which his brother had held, making Naṣr's son governor of Samarḳand, and choosing Bukhárá for his own residence, receiving the usual diploma of investure from the Khalifah. Such recognition had by this time become practically a matter of indifference, the Khalifate having ceased to be respected as a civil power and the Court of Baghdád only maintaining itself by a series of small intrigues. In fact at the very time Al Mu'taẓid-b'illah was accrediting Ismá'íl the "Defender of the Faith and of the Khalifate against all enemies" he was sending secret orders to 'Amrú bin Laiṣ, the Saffári, to attack and overthrow him. The result was a war lasting some seven years, which only terminated by the total defeat of 'Amrú under the walls of Balkh, who was taken prisoner 287 H. and sent by Ismá'íl to the Khalifah to dispose of as he deemed fit. The Khalifah rewarded want of success by causing 'Amrú to be paraded on a camel through the Baghdád streets and thrown into prison, where he was either starved to death or beheaded about 290; while to Ismá'íl he sent costly gifts and a further diploma investing him with the sovereignty of Khurásán from Bastam (the modern Sháhrúd) eastwards as far as Balkh, and northwards from Kain, by Sijistán, 'Irák, and Mazandarán to the Oxus. It is from this date, 287 H. that Ismá'íl is by many writers spoken of as the first of his dynasty entitled to be called a sovereign Prince. At the beginning of his reign he had defeated the 'Alawi Muḥammad bin Zaid* in Tabaristán, had disposed of the remaining claimants of the Ṭahiris, defeated and reduced to subordinate governors the Saffárís† in Sijistán and Balkh, and in a series of campaigns defeated the Turks on his northern border. Bukhárá was now the virtual capital of the Central Asian States. "The power of the ruler on the Zarafshán," (Scatterer of gold); says Professor Vambéry "extending northwards to the confines of the Great Desert, eastwards to the Thien-Shan mountains, southwards to the Persian Gulf and the northern frontier of India, and westwards beyond 'Irák to within a few days' journey of Baghdád." Ismá'íl's representatives governed the towns of Merv, Nísbápúr, Rai, Amol, Kázvin, Iṣfáhán, Shiráz, Hirát and Balkh.* He was well-known as a religious and pious prince, not less famous as a brave soldier than as remarkable for his love of justice, humanity, and taste for learning. He could have had but short respite from his protracted wars, repelling the invasions of Turks on the north, or waging crusades at the bidding of the Lord of the Faithful, but he did great things for Bukhárá, which under his rule became the centre of wealth and learning for nearly half Muḥammadan Asia. For details regarding his encouragement of science and literature, his patronage of eminent theologians and scholars, the palaces he erected, the schools he founded, his efforts for the encouragement of manufactures and for an improved water supply, a reference must be made to the chapter in Vambéry's Bukhárá, in which city the name of Ismá'íl Sámání is still venerated. He was born at Farghánah in the month of Shawwál 234 H., was 15 when his father died, governed Bukhárá for 20 years as the representative of his brother Naṣr, and for 14 years independently, dying on Tuesday the 14th of Ṣafar 295 H. his title then becoming Amír-i-Mázi, "the Late Amir."

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* Muḥammad bin Zaid al 'Alawi, a descendant of the Khalifah, 'Alí.

† Some particulars of the Saffárís are given subsequently.

ABU NAṢR-I-AḤMAD 295—301 H.

That is, Aḥmad the father of Naṣr, the eldest of Ismá'íl's four sons, afterwards designated Amír-i-Shahíd, "the martyred Amir" succeeded. "A prince of ungovernable temper and warlike tastes, but without a trace of his father's pacific virtues." His first act was to seize his uncle the governor of Samarḳand and imprison him in Bukhárá, his next, to punish the governor of Tabaristán who fled to Baghdád. He then marched on Sijistán against the Ṣaffárí Mu'addil who had assumed the sovereignty, but who was promptly subdued and imprisoned, Abu Ṣálih bin Mansur, the son of Aḥmad's uncle, being established as governor. Subsequently the Sijistánis revolted and confining Abu Ṣálih in the fortress of Ark set up 'Amrú bin Ya'ḳúb of the house of Laiṣ in 300 H., whereupon Aḥmad promptly re-invaded them and 'Amrú surrendering, another Sámáni governor was set up. Aḥmad's severities, and the execution of certain of his retainers, soon, however, raised enemies in his own house ready to assassinate him. He is said to have lived in constant fear of his life and to have had two trained lions secured every night near his sleeping apartments. The precaution being omitted one night, his own servants seized the opportunity, and earned for him the title of "Martyred," on day the 23rd Jamádi-ul-ákhir 301 H. His mint towns observed are Samarḳand, Shásh and Andarábah.

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* His mint towns represented in the British Museum are, Samarḳand, Shásh, Andarábah, Balkh, Ma'ádin, and Níshápúr.

NASR II 301—331 H.

Surnamed Abu Ṣáliḥ and afterwards entitled Amír-í-Sa'íd, the "August Amir," then a boy of 8 or 10, was taken from the harem to succeed his father; Abú 'Abd-ullah Muḥammad bin Aḥmad al Jiháni being appointed Regent. The Regent was a sagacious and moderate man who administered the government with a firm hand, but the extreme youth of the Amir encouraged a refractory spirit among many of the nobles and governors in the Provinces. Isḥák Sámáni, with his son Ilyás* revolted at Samarḳand and two campaigns were undertaken against him before he was finally defeated. Manṣúr,* another son of this Isḥák, at one time governor of Rai, raised the standard of rebellion at Níshápúr in 302, and Husain 'Alí the governor of Hirát joined him. Manṣúr died, and Husain was captured, and imprisoned, but subsequently pardoned. In 307 Aḥmad bin Sahl also an Amir or governor of Hirát, a faithful partizan of the family but to whom promises had been broken, rebelled, was beseiged, imprisoned, and died. In 309 troubles arose in Tabaristán. The 'Alawis had not only recovered from their defeats under Ismá'íl and Aḥmad, but began extending their authority over part of Khurásán. They too were defeated, but peace was not restored, fresh partizans appearing in some quarters as fast as dislodged in others, and some years of desultory fighting ensued before Naṣr could re-establish the Sámáni power in that Province again. Hirát seems to have been a scene of constant change. In 309 Abu Manṣúr-i-Jiháni was appointed governor. In 311 Sháh Malik son of Ya'ḳúb bin Laiṣ, Ṣaffári, was beaten off after four months' investment by one Simjur. In 319 Abu Ẓakria-i-Yaḥyá Sámáni* successfully attacked the city, leaving a slave Ḳarátigín in possession. Almost immediately Naṣr himself arrived and re-established Simjur. In 321 Manṣúr the son of 'Alí was appointed and held it for three years, when it was conferred upon Muḥammad bin Ḥasan bin Isḥák. The same year, 324, Abú-l'-Abbás Muhammad bin Al-Jarráḥ took it, and sent his predecessor bound to one Balkátigín. In 329 Balkátigín was himself removed from the government of Hirát which was again conferred upon Abu Manṣúr-i-Ḳarátigín. This would appear the first mention of Balkátigín, or of a Balkátigín, and it was also during this reign that Alptigín is first spoken of as one of Naṣr's mamelukes or slaves, though it is not until the reign of Núḥ I that he is mentioned as "Amir."

Naṣr as a ruler appears not to have been without talents, and in spite of difficulties to have retained the territories of his predecessors intact, if indeed he did not somewhat extend them. His range of mint cities, as far as known, is more extensive, including Samarḳand, Bukhárá, Shásh, Balkh, Níshápúr, Muḥammadíyah, Ḳumm, Andarábah, Ma'dín, Binkith, Akhsíkat, and Tamkat-Ilak, of which some are difficult to identify. He died in Rajab 331 H. after a reign of 30 years, extending over four of the Khalifahs. Of his three sons he had named the youngest but was actually succeeded by the eldest.

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* See Genealogical Table of the Sámánis.

NÚḤ I 331—343 H.

The reign of Núḥ the first, styled Amír-i-Hamíd, "the Laudable Amir," like that of his predecessors was made up of a long series of wars and revolts, and even more than Aḥmad or Naṣr he was in the hands of his officials. The Sámánís in place of leading themselves, became more and more the puppets of the Turks, who had already begun to assert their power as the dominant race. Núh's wars commenced with a campaign in 332 against Rukn-ud-daulah, the Diálamah or Buwiah, who had seized Rai. Abú 'Alí, Núh's general, who, after two campaigns succeeded in restoring order, demanded the Viceroyalty of Khurásán as his reward, and on being refused broke into open rebellion. Abú Isḥák-i-Ibrahím, Núh's uncle and rival, obtained powers from the Khalifah, joined the rebellion, and seized upon the high lands of 'Iráḳ and part of Khurásán (335 H.) and but for the rebels quarrelling among themselves Núh, would have lost his throne. He had in 332 put down the rebellion in Merv, and in 335 proceeded there again on the same errand, the nobles and soldiery showing signs of disaffection. On succeeding his father he had appointed as Wazir and entrusted with the administration of affairs, Shams-ul-Aïmmah, a man Minháj speaks of as having "by his enlightenment and just administration annoyed and irritated the rebellious party beyond measure," who was now charged by a section of the army with being the cause of all the confusion and division in the State, and demanded as a victim. "Give him into our hands," they said "or we will join your uncle." Núh was constrained by necessity to deliver the Imám into the hands of these tyrants, and they brought him forth. At the entrance to the royal residence there stood two tall white poplar-trees. These they bent downwards, and, fastening each of that unfortunate minister's feet to a branch of either tree which was nearest it, let the trees spring back again into their upright position, and the great man was torn asunder." The risk of being too famous as a "just man" was even greater under the Sámánís than among the Athenians. But the sacrifice of the minister did not postpone the evil day. Abú 'Alí the general went over and joined Rukn-ud-daulah, and a fresh revolt resulted in the latter becoming the independent ruler of Khurásán, the

Buwiahs* extending their power to Shiráz, the Sámánís being confined very much within their original frontiers of Trans-Oxania.† Núh died after a reign, in no other way especially remarkable, of 13 years, in 343 H.

'ABD-UL MALIK I 343—350 H.

The son of Núh, a boy of 16, was selected by the nobles to succeed him, the real business of State being carried on by the Wazir Abú Manṣúr Muhammad bin Al 'Aziz, and the Commander-in-chief, Abú Sa'íd-i-Bakir. The Amir or his advisers seem to have heartily endeavoured to restore the power of the Sámánís in the West, though the best the generals could succeed in obtaining were tolerable conditions of peace, but no submission. The final conclusion of the treaty with the Buwiahs seems to have brought the Commander-in-chief under suspicion, for both he and the Wazir were subsequently put to death by the Amir's order, the command of the troops being in 346 H. entrusted to Alptigín, the Ḥájib or chamberlain. It may here be noticed it was in this reign that according to Baihaḳi a merchant named Naṣr, a Ḥáji, speculated in a slave named Sabuktigín, and brought him to Bukhárá, where Alptigín purchased him, and took the *slave* along with him when he went as governor of Ṭukháristán, and subsequently when the government of Khurásán was entrusted to him, Sabuktigín accompanied his master, who after many vicissitudes of fortune finally took him to Ghaznín.

Abdul Malik was passionately devoted to field sports and "chivalrous amusements" which gained for him the title of Abu-l Fawáris, the "Father of Knights," he was also called Amír Rashíd the "orthodox Amir." He died after a seven years' reign on the 8th Shawwál 350 H. from the consequences of a fall while playing Chaugan or "Polo."

MANṢÚR I 350—366 H.

Abú Ṣálih-i-Manṣúr, Amír-i-Sadíd, "the Steadfast Amir," was elected by the commanders of troops, the heads and elders of the religious bodies, and the law, to succeed his brother. The Amír-i Ḥájib Alptigín who then held the governorship of Níshápúr, was during the election at Bukhárá absent somewhere in Khurásán. He was written to and consulted, and is said to have declared in preference for the son instead of the uncle of 'Abd-ul-Malik, although if the latter, who died at 17, had a son, he could have been but an infant. Whatever his advice may have been, it arrived too late, and meanwhile hearing of Manṣúr's election, Alptigín would fain have recalled it. The advice moreover appears to have given offence, for the government of Nishápúr was conferred upon Ibn 'Abd-ur-Razzák, much to the powerful Turk's astonishment, who hurried back to Bukhárá, some accounts say, with a formidable body of troops which were only stopped at the Oxus by a strong force of Manṣúr's adherents; others that he was met by a conciliatory letter assuring him of favour, turned aside from Balkh and proceeded to Ghaznín. Whichever is true, the increasing decay of the Sámání power is as evident as the rising influence of the "Turks," the former slave having now become a power in the land, and it is clear, that about this time Alptigín went, presumably for the second time, to Ghaznín as the Sámání Viceroy and died there in 352 H. On all sides powerful nobles were forming similar semi-independent States. In Farghánah, Sijistan and 'Iráḳ were revolts. The Buwiahs were masters of half Irán, and that dynasty had now become one with which the Sámánís were not strong enough to cope. Manṣúr's campaign against them had to be brought to an end. He made peace with Rukn-ud-daulah, and in 361 H. married the latter's granddaughter, the daughter of 'Uẓd-ud-daulah Faná Khúsrau which prince retained possession of 'Iráḳ, Rai, Gurgán and Ṭabáristán in fief on payment of an annual tribute. Manṣúr died on Tuesday the 11th of Shawwál 365 H.*

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* See the genealogical table of the Buwiahs, in which the principal territories held by the family at different times are indicated.

† The only mints represented in the British Museum are Samarḳand, Bukhárá, Sháсh and Níshápúr.

NÚḤ II 365—387 H.

Better known as Amír Abú-l-Ḳásim-i-Núḥ was elected by the people to fill his father's throne, and, in spite of the patent of investure and standard sent him by the "Lord of the Faithful," Al Tâ'i-lillah found still more stormy days and harder fights in store for him. The new ruler made Abú-l 'Abbás-i-Tásh the Ḥájib, and with him associated Fáyiḳ-i-Kháṣah, or Buk-Túzún as he is variously called, in the command of the troops and direction of military affairs; Tásh having the title of Ḥisám-ud-daulah "the sword of the kingdom." The son of another Turkish slave, Abú-l-Ḥasan-i-Simjúr ruled in the Amír's name over Nishápúr and parts of Khurásán, to which was subsequently added the territory of Ṭús, if not indeed part of Máwará-un-Nahr. Abul Ḥasan-i 'Abdullah son of Aḥmad Al'-Utbá, a member of whose family compiled the Taríkh-i-Yamíní, was made Wazir. Ḳábús the son of Washmgir was made, or rather recognized, as governor in Gurgán, and others in outlying provinces, but in most cases such governors were practically independent. Tásh the Ḥájib was despatched against 'Uẓd-ud-daulah the Buwíah who ruled both the 'Iráḳs, but defeated. Not long after both Tásh and Símjúr themselves revolted, although after some struggles both returned to their allegiance, and Abú 'Alí the son of the latter was given the command of the Amir's troops. Abú 'Alí turned out in every way even a baser man than his father, for he had no sooner entered the service than he commenced intriguing against Núh.

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* His chief known mints were Samarḳand, Bukhárá, Shásh, Farghánâ, Nishápúr, Andarábah, and Ámal.

On the eastern frontier of the kingdom a new power had for some time been growing, in the shape of the Khánate of Turkistan. Regarding the earlier of these Turkistán Kháns but little is known, and that little to a great extent unreliable. Of I'laks and Bughrás and Arsaláns there are at least two or three of each casually mentioned by Muhammadan historians, with a considerable amount of uncertainty as to their identity, and possibly the same man is occasionally made to do duty for two separate chiefs. The first who became a convert to Islám is said to have been Sátúḳ-Ḳujah, or Sátúḳ Ḳarachár, who endeavoured to extend the belief among his people, probably about 315 or 320 H. On his death, his son Músá succeeded, and after Musá his grandson Abú Naṣr-i-Aḥmad, bin 'Alí, bin Músá, under the title of *the Ilak* Khán, the title of I'lak by some being held to be the ruler of a tribe, or a leader, subordinate to a Khán. This I'lak bore the Musalmán title of Shams-ud-daulah, and is presumably the one who entered Márwará-un-Nahr from Turkistán in 367. The fourth was the grandson, Abú Músá-i-Hárún Bughrá Khán bin Sulímán bin I'lak, and though it is probably his successor, the more famous I'lak, who really completed the uniting and consolidating the scattered Turkish States from the Eastern frontier of Khoḳand to the modern Chinese province of Kansu, Bughrá Khán had nevertheless already become celebrated both as a powerful ruler and for his successful religious wars in the cause of Islám. He had united all the Eastern Turkish tribes under his sceptre and was now pushing his conquests westwards, thinking to enrich himself with some fragments of the decaying Sámání empire. Ignoring the puppet Amir, and addressing himself to the rebellious Abú 'Alí he entered Máwará-un-Nahr from Káshghar his capital, for the first time in 372 H., and subsequently in communication with Fáyik and Abú 'Alí with the latter of whom he had a secret treaty to divide the country, invaded in force in 380 H.

The Sámání forces were beaten on one or two occasions, the ablest of their generals, Madáwanj, being defeated near Samarḳand. The rebellious Fáyik would seem to have been then put at the head of the army, and to have promptly betrayed his trust, and when Bughrá advanced to Bukhárá there was nothing left for Núḥ but flight in disguise with a few faithful retainers, Bughrá entering the capital in triumph in 382 H. Fáyik, who had now declared himself his subject and been rewarded with Isfanjáb was despatched to Balkh, to collect taxes, and cause the Khán's names to be inserted in the public prayers and the coinage. Bughrá, however, did not remain long in Bukhárá, becoming much afflicted by a painful disease, which he attributed to the unhealthiness of the Sámání capital, he determined to return to Kashghar. As soon as he commenced his retreat,[*] Núh with the assistance of certain tribes of Ghuzz Turks, *viz.*, Turkománs, plucked up heart and set off in pursuit overtaking him at Samarḳand. Bughra at once faced about, and inflicted another defeat on the Amir, but before reaching Turkistán died himself in 383 H. He is described as a just and well-disposed monarch, the friend of learning, and the learned, from Kashghar to Chín. It is also worthy of note that it was in her reign, in 375, that Saljúk, the son of Luḳmán, one of the aforesaid Ghúzz Turks with his family and dependents finding their native pastures in the Karakhita too circumscribed, entered Máwará-un-Nahr for the sake of the pasturage, wintering in the Núr of Bukhárá, and summering in the Sughd of Samarḳand, and living to ultimately establish the famous Saljúk dynasty.

Núḥ once more retired to his faithful capital, almost the only part of his dominions that remained so, and cast about for some alliance to strengthen himself against his rebellious vassals. Such an alliance he found in Sabuktigín the famous founder of the dynasty of the Ghaznavís. Upwards of thirty years had elapsed since Sabuktigín had gone with Alptigín to Ghaznín and several changes, which will be subsequently noticed, had meanwhile occurred there, but the former slave, who had now become practically the independent ruler over territory extending from Ghaznín to the Indus, was nevertheless still devoted to the house of his suzerain. The people of Balkh had already implored his aid against the tyranny of Fáyik, and when a similar call came from Núh, Sabuktigín marched to the Oxus with a large army, including 200 elephants, halting on the way for a short holy war against certain heretics and schismatics on the confines of Ṭalkan, for which the Khalifah rewarded him with the title of Náṣer-ud-din, "The defender of the Faith." Núh met him at Kāsh, and their united forces marched into Khurásán. Abú 'Alí although powerfully supported by the governors of Gurgán and 'Iráḳ was no match for the combined armies of Núḥ and Sabuktígín, with whom was his son Maḥmúd. A battle was fought on the plains of Hirát in Shawwál 384 H., Núh resigning the entire command to Sabuktigín, in which the rebels were routed and fled to Nishápúr. This was the occasion when the aged Sabuktigín received the title of Násir-ud-daulah "Succourer of the kingdom," and Maḥmúd that of Saif-ud-daulah "Sword of the kingdom." Núḥ returned triumphantly to Bukhārā and Sabuktigīn to Ghaznīn, Maḥmúd being nominated to the command of the troops with the government of the territories of Balkh, Hirát and Níshápúr, having his head quarters at the latter place.* In the following year, 385, Abu 'Alí, who had taken refuge with Abú-l-Ḥasan-i-Buwiah, at Rai, thinking the departure of Sabuktigín had partly left the field open to him, attacked Maḥmúd at Níshápúr who after some hard fighting was defeated and driven back to Hirát: Abú 'Alí occupying Níshápúr, until Sabuktigín advancing with a considerable force to the rescue, he moved forward to meet him. A severe and sanguinary battle ensued near Ṭús; Abú 'Alí, with whom was Fáyik, being utterly routed and driven to Khwárazm.† The Sháh of Khwárazm, Abú Abdullah, in spite of a generous appeal from Núḥ, put the fugitive in irons (386), a procedure that roused the indignation of the Viceroy Múmún Mahmúd at Jurgán, who forthwith attacked and defeated the Sháh, threw him into the identical irons from which Abú 'Alí was released, and finally in thoroughly Roman fashion executed him to make a holiday for a party of friends.‡ Abú 'Alí was formally pardoned by the easy going Núḥ, but Sabuktigín considering him too dangerous a traitor, demanded his custody, and threw him into prison, where he died 387 H.

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[*] The Ṭabaḳát records that he made 'Abd-ul-Aziz, an uncle of Núh's his regen at Bukhárá.

But, to use the somewhat inflated language of Al 'Utbi, the once "lofty flame of the house of Sámání had sunk very low, and the star of their empire almost set." Ílak Naṣr the successor of Búghra, the most powerful and famous of all the Kháns of Turkestán, was already on the frontier squeezing the Revenue Collectors, and preparing for invasion in communication with the ever ubiquitous Fáyik. Sabuktigín, who since his last victory had remained at Merv, now moved to Balkh, where he received an imploring letter from Núḥ for fresh assistance. This, after some little consultation with his officers, he commenced active preparation to render, meanwhile to him Ílak also made overtures, urged their brotherhood of faith, and the desirability of an alliance against the feeble Amir, who squandered his substance and neglected the cause of Islám. In reply Sabuktigín declared his loyalty and attachment to the Sámání house, and his intention to fight all who rebelled against it. An answer, that, plainly translated, might be read as a determination to establish his own dynasty rather than assist Ílak or any one else to establish his. Both sides therefore prepared for war, Núḥ, true to his weak and vacillating character, was helpless in the hands of any adventurer near him, and Sabuktigín's advice to stand firm and show himself a king, was thrown away. He was ready to send troops, or to give fresh titles of honour, but not to do anything more; a plan that in no way commended itself to the stout old warrior of Ghaznín, who forthwith took matters into his own hands, and sent his son Maḥmúd with 20,000 cavalry to Bukhárá; thus virtually deposing Núḥ and insuring the reversion of the kingdom. Ílak who, though master of a large army, was either not sufficiently prepared to fight, or thought more was to be gained by diplomacy, now made overtures of peace, and Sabuktigín, disgusted with the inertness of Núḥ, accepted them, the Boundary Commission of the time fixing Kútúm as the actual frontier, Fáyik as usual receiving a solatium as governor of Samarḳand, and Maḥmúd returning as governor to Níshápúr. Sabuktigín returned to Balkh and Núh enjoyed a brief respite in Bukhárá, where he "went to the neighbourhood of mercy" on Friday, 13th Rajab, 387 H. in which year also died Sabuktigín.*

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* Coin No. XXIX of those now figured is of great interest in this connection confirming the accuracy of the chronicler, being struck by Maḥmúd the son of Sabuktigín, about this time, as "Saif-ud-daulah" and governor of Nisbápúr, giving also the name of his suzerain and of the khalifah who had recognized him.

† Minháj says, Fáyik was thrown into prison at Bukhárá and died there, but other writers do not agree, and Minháj himself brings him on the scene again shortly after.

‡ This on the authority of Al Utbi, but I have not been able to identify Múmún.

MANSÚR II 387—389 H.

The history of the last two Sámánís who occupied for some two years the nominal throne of Bukhárá, is merely a chronicle of the struggles for the fragments of the Empire. Amír Abú-l-Hirs-i-Manṣúr, who has been nominated by his father Núh as his successor, ascended the throne a raw and inexperienced youth, and among other of the mistakes of his brief reign of 20 months, he committed the great one of quarrelling with Maḥmúd. To the ruler of Ghaznín and the conqueror of India his unfriendliness was a matter of small consequence; he was pleased to ignore it, simply keeping aloof, attending to the consolidation of his power in Ghaznín, and the deposition of his brother Ismá'íl, who had in the first instance succeeded his father there. Fáyik was again entrusted with the command of the forces and again almost immediately commenced negotiations with Ílak, by whom he was summoned to Samarḳand and sent back to Bukhárá with Turkistan troops, the newly made Amir retiring to Ámul. At Fáyik's solicitation he came back again, entrusting the command that had formerly been Maḥmud's to a courtier named Baktúzún. These two worthies conspired together to dethrone him, which they did taking him from Bukhárá to Balkh and thence by Merv to Sarrakhs, where they put out his eyes, and set up in his place Abú-l-Fawáris 'Abd-ul Malik, his brother, a mere child with whom they went back to Merv.

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* The only mints of Núh are Bukhárá, Shásh, and for the early part of his reign, Nishápúr.

'ABD-UL-MALIK II 389 H.

'Abd-ul-Malik the second, cannot be said to have ever ruled, but briefly to trace his fortunes, and the still more exciting adventures of his brother Ibráhím, will perhaps be the most convenient way of dealing with the events that followed. Maḥmúd who had disposed of the claims of his brother Ismá'íl at Ghaznín, was already on the march with an army to Khurásán, and made the treatment of Manṣúr an excuse for interference. By the time Fáyik and Baktúzún had nominated 'Abd-ul-Malik Amir, he had arrived at Balkh, from whence a very short time brought him to the gates of Merv. The conspirators fought and fled, but subsequently negotiated an arrangement by whith Hirát and Balkh should be held by Maḥmúd, Merv and Níshápúr by them, the date of the arrangement being given as 26th Jamádi-ul-awwal, 389 H. Maḥmúd giving the command of his troops to his brother Naṣr, making Balkh the capital of his provinces west of the Kohi Baba, "the Father of Mountains." Not, however, before inflicting a severe defeat on a body of Sámání nobles collected under Dara bin Kábús, bin Washmgir, the governor of Gurgán, that had followed his army in hopes of plunder. 'Abd-ul-Malik and Fáyik returned to Bukhárá, where shortly after in the month of Shá'bán the latter died, "deeply regretting and heartily repenting of all the treachery he had committed, a contrition," as Minháj adds "that came too late." The adherents of the Sámání dynasty were all dispersed.

In the meantime I'lak had also moved uninvited to chastise the enemies of order in his neighbour's country, and revenge the cruelties practised on Manṣúr. He advanced from Farghháná to Bukhárá in the month Ẓi Ḳa'dah of the same year giving out that his object was to render aid to the Amir, and at the same time seizing and putting in irons a deputation of nobles who came out to meet him. He entered the city on the 10th of the month, any pretence was no longer necessary, the four sons of Núḥ, their uncles and all other representatives of the Sámání family likely to give trouble were arrested, 'Abd-ul-Malik the boy Amir being sent to a prison at Uzgand in Farghháná, the blind Manṣúr Yá'ḳub, Ibráhím and the others being separately confined to prevent their taking counsel together. Abú Ibráhím-i-Ismá'íl known to history as Muntaṣir was the only one who escaped or is ever heard of again, and he for some years made a series of gallant but abortive attempts to restore the fallen fortunes of his house.

MUNTAṢIR, THE LAST OF THE SÁMÁNÍS.

The adventures of Muntaṣir suggest a chapter of the chronicles of the Cid, and the story as told by the contemporary Al 'Utbi offers a characteristic bit of the intricacies of Central Asian History. Disguising himself as a slave girl he succeeded during the confusion at Bukhhárá in getting away, taking refuge for three days in the house of an old woman in the city, and eventually in the dress of a common soldier reaching Khwárazm. Here he was joined by a few Sámání nobles and soldiers, and received warm sympathy and afterwards assistance from Shams-al Muálí Kábus of Gurgán. To cope with an adversary like Ílak was hopeless, but for a long time he was able to carry on a desultory war on the confines of Khhurásán and Máwará-un-Nahr. When Ílak left Bukhhárá he paid that city a flying visit, capturing J'afartigín and 17 other principal Kháns, and being welcomed by the people. His Ḥájib, one Arslán-i-Bálú, defeated Tigín Khán a general of Ílak's near Samarḳand, but both beat a hasty retreat on the first rumour of Ilák's preparation to return. At times his following became formidable and he encountered on various occasions the troops both of Ílak and of Naṣr, Mahmud's brother, who was now commanding at Níshápúr and governor of Khhurásán, and with occasional success. In 391 he succeeded in capturing Níshápúr, the Ghaznavi general falling back to await reinforcements from Maḥmúd, who sent to his assistance the Ḥájib Altontásh, the then governor of Hirát, by whom Muntaṣir was driven back to the frontier of Gurgán to find his former friend there, Shams al Muáli, turned against him. Again rallying, with the help of the Ghhuzz Turks (Turkománs) and their chief Bighhú, he successfully attacked Ílak in 393, and is next heard of as "flying in the night" in personal fear of his Ghhuzz allies. Now he appeals *ad misericordiam* to Maḥmúd, reminding him of the rights of his ancestors, the Sultan's feudal relations, of the many sorrows and extreme distress which had been his misfortune, and breaks out into verse which Reynolds freely translates.

"To mine eye, on which thy goodness still is painted, thou art dear;
To mine heart, which oft from misery's blows hath fainted, thou art dear;
To a soul forlorn, to sorrow born,
Which Heaven has grudged to cheer,
That looking round, few friends hath found,
Oh, chieftain thou art dear."

Without waiting or perhaps expecting a reply to this effusion, he makes for Merv, there unsuccessfully soliciting assistance from Abú Ja'far; thence to Abiward, in 394, where Abú Naṣr, a general of Maḥmúd's lends him active support, and the two attack and are beaten by the Sháh of Khwárazm. Next with a few followers, who seem to have stood faithfully to him through every calamity, he makes for Isfarayín, only to find that city closed against him. Then crossing the Oxus once more, he is met by the cavalry from Bukhárá and narrowly escapes with his life. At this crisis he falls back on his Ghuzz-Turk friends again, the military governor of Samarḳand joining him with 3,000 men, and the citizens sending him 300 "picked Turks and a supply of money." So that he is sufficiently formidable to first alarm, and subsequently defeat, the forces of I'lak, near the village of Burband in Shá'bán 394; the Ghuzz coming in for abundant loot. I'lak is now roused, assembles an army and inflicts upon him a crushing defeat, the Ghuzz having meanwhile gone off with their loot. This defeat seems to have been a final one, Muntaṣir retreating to Balkh from which place his flight, like the hunted hare, was in a long continued circle. From Balkh he fled to Kohistán.* Naṣr the Ghaznavi general, Arslan Jazíb the prince of Ṭus, and Tughánjak Prince of Sarkhás hurrying after him, he continues his course to Júmand and Bastam, where Shams-ul Muáli, of Gurgán, with 2,000 body-guards, takes up the running to Bibar and Nísa. Beguiled by false promises he is induced once again to attempt Bukhárá and arrives at Sháh Ḥamad his few attendants wearied with long marches and their long continued run of ill-luck. Deserted by his worn out followers, with no supplies, or other means of further resistance, he retreated to the encampment of a nomad Arab tribe, and sought shelter in the tents of one Máh Rúe the "moon-faced" chief of the tribe. In Al 'Utbi's words, "when the night arrived the vile Arabs of this Arab made a sudden attack upon him and spilt his noble blood upon the first day of the month Rabí-ul-awwal, in the year 395, and they buried his remains in marshy ground of the irrigated country of Mardám." "Moon-face," it is satisfactory to note, was afterwards put to death for his brutality by Maḥmúd, whose sympathies were aroused for the unfortunate Muntaṣir.

* The troops both of Maḥmúd and I'lak were on the look out for him.

Thus ended the dynasty of the Sámánís, Muntaṣir being the last of his house. With him a family became extinct which for the space of nearly a century and a half had ruled over a large part of Central Asia, "and whose members," as Vambéry writes, "may therefore with truth be regarded as the founders of that religious and social polity which was regarded by the Muhammadans of three continents, as the nearest approach to the golden age of Islám, and is in consequence still to this day held in high veneration. Baghdád and other cities of Western Asia were open to all manner of free-thinkers, but Bukhárá, Balkh, and Samarḳand, were, under the Sámánís, the special refuge of the Muhammadan scholars and zealots * * *. The political supremacy of Bukhárá over the different tribes of Central Asia, which has been maintained up to modern times by the rulers on the Zarafshán, may be traced to a similar origin. The deference paid by the mighty Sabuktigín to Bukhára, a deference imitated in later times by Afghans, Indians and Uzbegs, began during the period of the greatness of the Sámánís. They represented the last Iranian dynasty in the land of the ancient Iranian civilization and the importance of the legacy left by them to their Turko-Tartaric successors on the throne of Transoxania cannot be overrated."

I'LAK NAṢR AT BUKHÁRÁ 389–403 H.

Abú-l-Ḥasan-i Naṣr I'lak Khán, the son of 'Alí, who is described as the brother of Hárún-i Bughra, now that the Sámání family were removed, ruled unopposed in Máwará-un-Nahr, and not long afterwards, he wrote to Maḥmúd congratulating him on his inheritance of the kingdom of Khurásán and proposing a friendly alliance, with a settlement of boundaries, all the trans-Oxus territory to appertain to him, and all Mádún-un-Nahr, or Cis-Oxus, to Maḥmúd. I'lak probably at this time was, at least nominally, acknowledged ruler of all the territory from the borders of China to the Caspian Sea. Maḥmúd's ambition was in the direction of India, and some such treaty and alliance seems to have been made about 396 H. and for some time friendly relations to have been preserved. An embassy was sent by Maḥmúd, consisting of Tughánjak Prince of Sarkhás and Abú-l-Ta'ib Sahl bin Sulaimán, Sa'lúki the Imám of the sacred traditions, who is described as one of the singular scholars of the age—"sound in controversial tact, casuistical divinity and lunar calculations"—to demand the hand of I'lak's daughter for his son Muhammad, a young lady,—"the unequalled pearl" who was subsequently married to another son Masa'ud, and the most valuable presents were interchanged on both sides. Such an alliance, however, proved but temporary, for no sooner had Maḥmúd proceeded on one of his expeditions to India, to where he had gone the same year, (396), than I'lak seized the opportunity for invasion, sending Sub'áshitigín* with a large force to occupy the country Cis-Oxus, and a general, Ja'fartigín, to invest Balkh. Sub'áshitigín advancing as far as Hirát, Arslán-i-Jázib the Prince† of Ṭus, who had been established there by Maḥmúd, fell back to Ghaznín in accordance with the previous instructions left him.

Maḥmúd who at the time was at Múltán, which city he had just taken, no sooner received the news than he hastened back to Ghaznín, arriving, says one chronicler, in 40 days, beat off Ja'fartigín from Balkh, and sending Arslán with 10,000 cavalry in advance, pressed Sub'áshitigín so hard, the latter had to abandon the most of his baggage, entrust a subsequent instalment to the Sháh of Khwárazm, and save himself by flight across the desert. "So hot was the pursuit there was not even an opportunity for bathing" says Al Utbi. I'lak who was himself trans-Oxus made an unsuccessful attempt to divert Maḥmúd by sending a further force of 6,000 cavalry under Ja'afartigín. This was in 397 H. I'lak now prepared for a fresh struggle, allying himself with Ḳadr Khán the ruler of Khután, a city to the east of Yarḳand, who may possibly have been his brother,‡ and moved on Balkh with a large army, including 40,000 cavalry. The preparations of Maḥmúd were also on a large scale, for in addition to his Afghán, Turkish, and Hindu troops, was a contingent of the Ghuzz (Turkománs). The armies met near Balkh and the order of battle was arranged with great care on both sides. Maḥmúd assigned the centre to his brother Naṣr, Abu Naṣr Farighúni, and Abú 'Abdullah Tái, with a force of Kurds; the Ḥájib Altúntásh commanding the right and Prince Arsalán Jázib the left; himself holding a force of 500 elephants in reserve. I'lak placed Ḳadr Khán with the Khután army on the right and Ja'afartigín on the left, himself taking the centre with a picked force of Turkish troops, who appear to have done great execution, and for some time the fortune of the day was doubtful, but Maḥmúd finally heading a charge with the elephants on I'lak's centre, turned the scale, and gained the victory. I'lak was now finally driven back to Máwará-un-Nahr, many prisoners being taken, and numbers of his followers drowned in the Oxus. Khondamir asserts with confidence that this was in 397 H. but the date generally accepted is the 22nd Rubí al Akhir 398 H. Maḥmúd next turned his attention to certain of his provincial governors who had been unfaithful to their trust, including Khalaf bin Aḥmad of Sijistán, who for the second time had been found intriguing with Ílak, and if he had not rendered actual assistance, had encouraged his invasion; and who in consequence was now permanently imprisoned in the fortress of Juzdaz in Ḳábulistán. Shortly after, in 401, Maḥmúd again departed for Hindústán, against the fortress of Bhimnagar.

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* Khondamir says "Siáshitigín."

† A petty chief.

‡ Some accounts put his contingent at 30,000 men.

Ílak, who at the battle of Balkh, must have been pretty well advanced in years, never seems to have recovered from the disappointment of that defeat, and though he nourished the hope of revenge, time did not permit him to gratify it, for he died in 403 H.*

TUGHÁN OR TUGÍN KHÁN 403—408 H. AND ARSALÁN KHÁN.

Sharf-ud-din Tughán, or Tugín, Khán now succeeded him in Máwará-un-Nahr and Turkistán, though it is probable he may have ruled territory prior to this, and it is more than likely that though ruling in Bukhárá, the seat of his government was Kashghar. His authority was not unquestioned even in parts of Máwará-un-Nahr, while immediately beyond was a general struggle for power. Every man did very much what pleased him, some had united to oppose Ílak, others were nominally subordinate to Maḥmúd, but at any time ready to set up petty kingdoms for themselves. The Turkish nomads spoken of as Ghuzz, a term that probably included tribes scattered over most of what is shown on modern maps as Turkistán, and who have since come to be famous as Turkmáns or Turkománs, have been several times referred to, and, as also noticed, some of these had moved with their flocks and herds to the pasture lands of Bukhárá and Samarḳand, in fact had established themselves on both sides of the Oxus. There they stayed, for it can hardly be said they settled, embraced Islámism, and were ready to take sides in any expedition that offered prospects of plunder. The chief named Beghú, mentioned as assisting Muntaṣir against Ílak, a chief variously stated to have been a commander under Saljúk, or a son of Músá bin Saljúk, and the uncle of Tughríl Beg, was probably one of the first founders of the Saljûk family which was then coming rapidly to the front rank and became, within a year from the death of Maḥmúd, 422 H. a power of more importance than ever the Sámánís had been.

Major Raverty and most authorities give the name as Tughán, and the former suggests a possible derivation from *tughán* the Turkish for falcon—the "falcon knight," but on the coin No. XVII of the annexed plates, which is in exceptionally good preservation, the mint, Bukhárá, and the date, 407 H. beihg quite clear, the name appears to read جغفر يتكين Jafari (?) Tagín and M. de Tiesenhausen in a notice of Count Stroganoff's collection describes a very similar coin (No. 31) of the same name struck at Bukhárá in 406. The first name may be doubtful, but the last cannot be read Tughán the ک is clear. It is therefore possible the name of this Khán was Tagín, and it is not probable a rival Chief ruled in Bukhárá during these two years, although there were rival Afrásiyáb Kháns there shortly after, as for instance 'Alítigín, against whose tyranny Maḥmúd was appealed to on more than one occasion.*

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* The mints on the British Museum coin of Ílak are Bukhárá and Khujandah, to those may be added Samarḳand and Farghána on coins now figured. Of Manṣúr II or Abd al Malik II Sámánís no coins are known.

In 408 his dominions were invaded by a vast horde of settlers from Chín who had been displaced from their own lands, to the number of 100,000 tents, (khargahs) equal to that number of families. The Khán resented the invasion in the name of Islám, summoning all believers to his assistance, and though himself ill at the time, after much fighting drove them back, vast booty and many captives falling into the hands of the "Musalmán Turks" and their allies. He died the same year, and was succeeded by another brother Abú-l-Muzaffar-i-Arsalán Khán, also styled Al-Aṣam, "the deaf." It was in this year that the princess, 'the casketed gem of I'lak Naṣr," who had previously been betrothed to Maḥmúd's eldest son and who was afterwards married to Mas'úd, arrived at Balkh, which capital was illuminated; and it was not long after that Maḥmúd made over to Mas'úd the government of Khurásán, with Hirát as his head quarters. Some accounts show this Arsalán as fighting with Maḥmúd in 410, and overthrown, but Maḥmúd appears to have made an expedition to India in 409, and another in 410, when he was absent from Ghaznín some four years. The date of Arsalán's death is uncertain.

The Subsequent Kháns of Turkistán.

History in the matter of these Turkistán Kháns or Afrásiyábí maliks, as they are variously called, is nearly as uncertain as regarding the predecessors of I'lak. Some are mentioned as more or less intimately connected, both by marriage and alliance, with Maḥmúd and his immediate successor Mas'úd, and as a considerable power beyond the Oxus; others again in connection with the Saljúks, with whom they also intermarried, and who after a time may be looked on as the suzerain power to which they were at least nominally subject. These warlike, plunder-seeking sons of the desert kept moving further forward to the rich cities of

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* On the other hand No. XXIV of the coin figured seems to read Tughán Khán but without mint and date or much legible the name of the Khalifah al Kádir B'illah.

Khurásán and after Mas'úd's time their chief strongholds were probably Balkh on the east and Nísházpúr on the west, from whence their influence gradually extended, till some of their chiefs met the crusaders in Syria, but it seems doubtful if they were ever able to maintain themselves in Máwará-un-Nahr. The substance of power there remained with the Turkistán Kháns, or their representatives.

According to Major Raverty,[*] the eighth in order of succession was Ḳadr Khán, son of Yúsuf, son of the Bughrá Khán-i-Hárún but numismatic evidence goes to show that more probably Yúsuf was the son of 'Alí, the brother of this Bughrá. He is described as a prince of great justice and goodness and to have entered into a fresh treaty with Maḥmúd. One authority, Gardezí, says, the complaints by the Musalmáns against the Afrásiyáb Khán 'Alítigín of Bukhárá had reached Maḥmúd at Balkh in 415, and he advanced to deliver them, upon hearing which Ḳadr Khán left Kashghar, met him at Samarḳand and there arranged the treaty. Faṣíhi, however, puts the date at 419, about the time Maḥmúd seized Isrá'íl the Saljuk and sent him off to Kálinjar in India. In 417 two of Ḳadr Khán's brothers, Ḳayá and Bughrá, are stated to have sent envoys to Ghaznín proposing a matrimonial alliance. Maḥmúd replied it was not the custom to give the sisters and daughters of Musulmáns to infidels, but if they would become Muhammadans the matter would be considered. Subsequently it was agreed that his daughter Zainab should be betrothed to Yughántigín, afterwards Bughrá Khán II, Ḳadr's son; while the latter's daughter was also to be betrothed to Mas'úd. Ḳadr Khán is shown as dying in 423 H.

The IXth Arsalán Khán the second, Major Raverty calls the son of Bughrá Khán-i-Hárún, and says at that time Arṣalán was Lord of Kashghar, Khutan, Khujand, and Bilásághún. It is very unlikely, however, that a son of Bughrá's would have been shut out of the succession for forty years, and on two or three of the coins now figured, the name of Arsalán is associated with Yúsuf as a title or family name, and on one of those described by M. de Tiesenhausen (No. 32) the name reads Arsalán Ílak Yúsuf bin 'Alí which would point to his being a possible brother of Ḳadr Khán (No. VIII). Some hostility arose between Arsalán and a Bughrá, also described as a brother, by whom he is made captive and imprisoned. This Arsalán is the person to whom Mas'úd of Ghaznín sent a despatch after the battle with the Saljúks at Dandánḳán a fort near Merv, in 431 H.[†]

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[*] The account of the following Kháns is mainly taken from Major Raverty's notes to the Tabaḳát.

[†] As before remarked there is an amount of uncertainty as to the identity of, these various Arsaláns and Bughrás. The first Arsalán, brother of Ílak is shown

The Xth was the son of Ḳadr, Yughántigín or Bughrá Khán the second, then Lord of Bánkí or Ṭaráz and Isfanjáb (a town on the borders of Turkistán). He nominated a son Ja'fartigín his heir, on which the mother of Ibrahím, a younger son poisoned him with several of his Amirs and also put an end to Arsalán the second who was still in confinement, in 439 H.

The XIth was the son Ibrahím, who was killed on an expedition against Binaltigín, or Niáltigín on which he had been sent by his brother, and with him the direct line terminates. It may also be noticed that an Ibrahím named Ṭamghaj or Ṭaghmáj Khán is mentioned by one author as flourishing about this time.

The XIIth Abú-l-Muẕaffar-i-Ṭafḳáj Khán, the son of another Ibrahím bin Naṣr. He had previously been a ruler of Samarḳand under the sovereign and now succeeded to the throne, dying of paralysis in 460 H.

The XIIIth Shams ul Mulk Naṣr, known as the Kháḳán, was a son of Ṭaf-ḳáj. He married the daughter of Sulṭán Alp Arsalán, the Saljúḳ, who in 453 or 454 undertook the subjugation of Turkistán, but had to abandon the enterprise and return from Kashghar to the aid of the Khalifah. Alp Arsalán's son, afterwards famous as Sulṭán Malik Sháh, married a niece of Naṣr's named Turkán Khátún and on at least one or two occasions Malik S'háh invaded the Khán's dominions. In 468 he entered Máwará-un-Nahr and deposed Sulimán Khán who governed at Samarḳand, and by way of teaching this governor to behave himself, he was made to walk all the way to Iṣfahán on foot, but was subsequently restored. In 471, Sulṭán Malik Sháh came again and finally removed him. Naṣr died in 472 H.

The XIVth was Khizr Khán, a brother of Naṣr, who died soon after.

The XVth Aḥmad Khán the son of Khizr, or of another brother Ja'far, whose tyranny became so notorious that Sulṭán Malik Sháh marched into Máwará-un-Nahr to coerce him. Aḥmad was defeated and sent to his aunt, Turkán Khátún, but after awhile restored to the sovereignty. In 488 H. he was put to death for heresy.

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as succeeding in 408, but nothing is known as regards his death. The second is said to be advanced from the over-lordship of Kashghar &c. to sovereign power in 423. It is not quite clear that they were different persons.

So also the Ḳadrkhán who is mentioned as furnishing such material aid to I'lak at the battle of Balkh in 398 is not afterwards accounted, for while in the Tabaḳát the Kadrkhán who concludes a treaty with Maḥmúd in 416 or 419 is called the brother of the late I'lak, Gardezi calls him cousin. They may be the same. Possibly further numismatic evidence may help to clear up the difficulties.

The XVIth Maḥmúd Khán, son of an uncle of Aḥmad, but of which uncle does not appear, succeeded both in Turkistán and Máwará-un-Nahr but in the year 490 H. Dabkúlí-i-Tughán Khán, son of Ḳara Khán marched an army against him and slew him.

The XVIIth was Ḳadrkhán, or Kunduz Khán, bin 'Umr Khán, bin Aḥmad Khán (No. XV). In 495 H. he invaded part of Khurásán, and in Shábán of the same year, Sanjar son of Sulṭán Malik Sháh defeated him near Tirmiz and put him to death.

The XVIIIth Muhammad Khán, or Arsalán the third, by some called Aḥmad, a son of a sister of Sanjar's by Sulímán bín Dáud bin Bughra (No. X) and who for some time before had been in exile succeeded in 495 H. In 523 Sayyid Ashraf the 'Alawi with the people of Samarḳand rebelled against him and some say slew his son Naṣr; others that the two septs of Ḳárlúghíah and Ghuzz Turks who formed a large part of Arsalán's army, combined with Naṣr were induced by the Samarḳandís to revolt, and the latter was executed. Arsalán had called upon his uncle Sanjar for aid, but suppressed the outbreak before any arrived, he had, however, fallen under suspicion of plotting against the Saljukí, and Sanjar advanced against Samarḳand, took it in 524, and deported Arsalán to his brother-in-law, at Merv. Arsalán was restored to the throne by Sulṭán Sanjar in 526. The year of his death is not recorded. It is also noticeable that in 522 Aghúz the Chíní with a vast horde invaded Kashghar. He was driven out, but the same authority speaks of his successor as the Gúr Khán, a name that shortly became famous.

The XIXth Ḥasantigín bin 'Alí bin 'Abd-ul Múmin, more commonly called Abú-l-Ma'alí Ḳuliji-i-Ṭamgháj, a man of the same family, was then raised to the throne by command of Sulṭán Sanjar but died shortly afterwards.

The XXth Rukn-ud-dín Maḥmúd Khán, bin Arsalán (No. XVIII) and great nephew of Sultan Sanjar, sometimes also called Kháḳán, was raised to the throne by his great uncle's support in 526. In 531 he encountered the Gúrkhán of the Ḳarakhitái in battle within the limits of Khujand, but was defeated and compelled to retire to Samarḳand. Sulṭán Sanjar advanced with a large force to his assistance but was also defeated in 534, and about this time it may be said the suzerainty of Máwará-un-Nahr was transferred from the Saljuks to the tribes of Northern Turks once more. Maḥmúd Khán forsaking his country and possessions, went to Khurásán with Sulṭán Sanjar, and remained at his court till the latter was taken captive by the Ghuzz, when as a temporary measure he was raised to the sovereignty of Khurásán. Shortly after Sanjar escaped and died in 552, when Maḥmúd had a stormy reign of 5½ years as nominal sovereign again, he was finally blinded by a former slave of Sanjar's, Mu'ayyid-ud-din, and died in 558 H.

The XXIst a Ṭamgháj Khán bin Muḥammad Khán, but what Muhammad does not appear. He became the governor of Máwará-un-Nahr after Sanjar's imprisonment by the Ghuzz, but possessed little beyond nominal power, and his reign was short and stormy. He was tributary to the Ḳara Khitáis, who continued to hold sway until finally driven out by Muḥammad Khwarazm Sháh. He was subsequently slain by the Ḳárluks or Ḳárlúghs, and his corpse cast into the desert in 550 or 551. Ṭamgháj it may be mentioned appears as the name of a territory in Turkistán, and is also a dynastic name.

The XXIInd Jalál-ud-din 'Alí son of Hasantigín (No. XIX) also entitled Khizr Khán, and by some Jaghar Khán, succeeded with the support of the Ḳara Khiṭáis, but as in the case of his precessor, and subsequently of his successor, who was styled the Kháḳán of Máwará-un-Nahr, was entirely subordinate to the Gúr Kháns, and when Iyal Arsalán Khwárazm Sháh marched an army to Bukhárá and Samarḳand in 553 the *Ílak* of the Turkán with 10,000 men was sent by the Gúr-khán to his assistance. The length of his reign which must have been long is uncertain, as is the date of the accession of his son.

The XXIIIrd Sulṭán 'Us̱mán bin Jalál-ud-din, who on account of the antiquity of his race was styled Sulṭán us Salátín, and who was said to be a second Yúsuf in beauty. He solicited the hand of a daughter of his suzerain in marriage, but the Gúr Khán refused, for which very reason Sulṭán Muḥammad Khwárazm Sháh gave him a daughter of his own in 606. Great friendship arose between 'Us̱mán and his father-in-law, which was afterwards turned to equal resentment, for 'Us̱mán threw over Muḥammad and was making overtures to the Gúr Khán, when the former marched against Samarḳand, and at the instigation of his own wife, Khán Malik by name, 'Us̱mán was put to death in 609 H. and with him finally ended the Afrásiyáb dynasty. Sulṭán 'Us̱mán it was who is said to have interceded with the Ḳara Khiṭáis, and saved the life of Sulṭán Mu'izz-ud-din Muḥammad bin Sám Ghúri after his defeat at Andkhúd in 601 H. and enabled him to escape.*

THE DYNASTY OF THE ṢAFFÁRÍS. 255—300 H.

In immediate subjection to the Sámáni kings, and subsequently more or less closely identified with the Ghaznavi rulers to whom in turns they became subordinate, were the semi-independent governors of Sijistán or Nimroz, who succeeded, and were allied to, the dynasty of the Ṣaffárís. The following short summary may help to make their connection with the period clearer.

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* In the genealogical tree appended I have endeavoured to show as far as possible, in a tentative way, the relationship of these Turkistán kháns. There is, however, much still wanting to make an intelligible account of them possible. Perhaps numismatic material may exist in some of our Indian cabinets to suppliment, and in many respects correct this.

According to the Ṭabaḳát, Ya'ḳúb, 'Amrú, 'Alí and Mu'addil, were four brothers the sons of Lais̤, the Saffár or worker in brass, who was the head of the braziers of Sijistán in the days when Ibrahím was the governor and Ṣáliḥ the deputy governor on the part of Muḥammad Ṭáhir, the last of the Ṭáhirís, then Amír of K͟hurásán. Lais̤ is described as a restless refractory fellow with a large following, and his character seems to have descended to his son Ya'ḳúb, who caused Ṣáliḥ to be put to death, armed his followers, seized the deputy governor's palace, declared himself Amír, and raised an army that in a brief space not only made him master of the situation, but enabled him to start a career of conquest of his own. Having raised his army he led it towards Bust, and Zawulistán, Zamín-i-Dáwar and Ghaznín, subduing the whole of them, thence advanced into Ṭuk͟háristán an ancient district of Bal͟kh; Bal͟kh itself, and on to Kábul, with uniform success. In 256 he returned to Sijistán and subsequently advanced to Hirát which cost him much fighting before he obtained possession of it. After this he took Bádg͟hais, Búshanj, Jám, Bák͟hurz, and in 259 Níshápúr, where he seized Muhammad-i-Ṭáhir with his treasure and followers, and having visited Gurzán and Ṭabaristán, and extorted tribute, again returned to Sijistán, setting free Muhammad-i Ṭáhir who found a refuge at the court of the Khalifah in 261. His brother 'Amrú he made governor of Hirát, and after one more excursion into 'Iráḳ he died at K͟handah-i-Shápúr a town of Ahwaz in 265 H.

The IInd was 'AMRÚ, the brother, who on succeeding withdrew his forces from 'Iráḳ and the year following (266) moved to Hirát and thence to Níshápúr before the gates of which he was defeated by one of the Ṭáhirí Amirs and fell back on Hirát. In 271 the Khalifah deposed him, and declared the government of K͟hurásán given back to Muḥammad-i-Ṭáhir, sending one Ráfi' bin Hars̤amah as his deputy, who joined his forces with the Ṭáhir Amir's. But in 284 'Amrú defeated them and sent Ráfi's head to the Khalifah at Bag͟hdád with a request that he, 'Amrú, might now be recognised as the governor of Máwará-un-Nahr, K͟hurásán, Nimroz, Fárs, Kirmán, Ahwáz, and the guardian of the entrance of the Palace of the Khalifahs; moreover that the name of 'Amrú should be mentioned in the K͟huṭbah and inserted on the coins of Makkah, Madínah, and Hijáz. All of which demands seem to have readily agreed to by the Khalifah's court and the usual "dresses of honour and counter-marks of favour and distinction" sent him. At the same time, it will be remembered the Baghdád court had just conferred similar favours on Ismá'íl Sámání. No sooner had Amrú proceeded to take possession of Máwará-un-Nahr, than Ismá'íl advanced from Bukhárá and crossed the Oxus to prevent him. How 'Amrú was defeated under the walls of Balkh in 287 and sent a prisoner to the Khalifah, and the fate he met with in Baghdád has already been noticed. Arraján is his only mint represented in the British Museum.

The IIIrd Táhir the grandson of 'Amrú was then set up, and after a somewhat chequered career, in which he was once or twice in possession of Fárs, was defeated by a rebel slave, a Sigizí, and together with a brother of Ya'kúb's, deported to Baghdád and there made a public show of like his grandfather, dying in 296 H. Two of his known mints are Fárs and Zaranj.

The IVth Laiṣ bin 'Alí another son of the Brazier, who entered Fárs from Sijistan, attacked and drove out the Sigizí slave but was again driven out by the Sigizí reinforced by troops of the Khalifah. Soon after, however, this Sigizí withheld the Khalifah's share of the revenue and was in his turn driven out to the wilds of Khurásán. In the same year, 296, Abu Naṣr-i-Aḥmad Sámání obtained possession of Sijistán, taken prisoners several of the Saffárís, and leaving his cousin Abú Ṣáliḥ Manṣúr as governor. Laiṣ bin 'Alí is said to have died in Fárs in 298 H. Bust is his only mint in the British Museum.

The Vth Mu'addil the brother of Laiṣ (No. IV) assumed the sovereignty in 299 driving out the Sámání governor, upon which Aḥmad Sámání despatched a large army under some of his principal nobles, Hasain 'Alí, Marw-ar-Rudi, Ahmad bin Sahl, &c., to whom Mu'addil surrendered at discretion and was taken to Bukhárá and thence sent to Baghdád, which city would seem to have served as the Jericho of the time.

The VIth 'Amrú, great-grandson of the 'Amrú the son of the Brazier attempted the sovereignty in 300 H. when again Aḥmad Sámání despatched a force under the above-mentioned nobles, but after a defence of 9 months 'Amrú surrendered his capital, and the territory of Sijistan received a Sámání governor; who is not mentioned.

The Governors of Sijistán. 300—393 H.

Ist. Shortly after the above events Aḥmad said to have been the grandson of Ṭáhir, (No. III above) who was living in distress at Hirát, attracted the notice of Naṣr the II, Sámání, and had bestowed upon him the government of his native country, Sijistán. From Aḥmad there follows a period regarding which there appears little beyond numismatic evidence, and that very scanty. How long Aḥmad was governor was unknown, but from a coin in the British Museum, struck at Sijistán in 306 No. II Kaṣayyar bin Aḥmad would appear to have been then governor. Whether immediately after or no is not known but he must have been followed by

No. III Khalaf, whose coinage both gold and copper shows him to have ruled at Sijistán from at least 325 to 334 H. and during the Khalifat of Al Mustakfi and Al Muti'. This of course may have extended either or both ways. The copper coin now figured as No. XXVII is very nearly identical with the one in the National Collection, with the exception that the date reads 334, as compared with 325. A Khalaf is mentioned as the son of 'Abú Ja'far bin Laiṣ, but which Laiṣ is uncertain, and this Khalaf as being the father of a Muhammad who again was the father of an Aḥmad. Giving this genealogy for what it is worth the

(? IVth) Aḥmad bin Muḥammad, would, from another British Museum coin, appear to have been the governor of Sijistán in 340 H. but as regards the length of his rule all dates are wanting. His successor was presumably

(? Vth) Khalaf bin Aḥmad, whose biography has been noticed at length by several contemporary writers. At times in direct subjection to the Sámánis, making a pilgrimage in 353 to Makkah, leaving his son-in-law, Ṭáhir bin Ḥusain, to act as his deputy; obtaining aid from Manṣúr bin Nuh on his return to drive out the deputy, Al Ḥusain bin Ṭáhir, who in the meantime had succeeded his father, and usurped. Again on the withdrawal of the Bukhárá troops asserting supremacy and engaging in expeditions of his own. Rebelling against Núḥ bin

Manṣúr, by whom his capital was invested. Intriguing with and against the Ghaznavís. Joining Sabuktigín with a contingent, who sends back his forces with honour and consideration only to find him intriguing with Ílak. Subsequently seizing provinces of Maḥmúd's, whose uncle Bughrájak was slain by Khalaf's son Ṭáhir at Fushanj in 390. By Mahmúd he is beseiged in the fortress of Ṭák, reduced and has to make abject submission. Anon in 393 abdicating in favour of his son Ṭáhir,* but thinking better of this, treacherously putting the latter to death. Again besieged by Mahmúd whom he flatters by addressing as "Sulṭán" and has Júzjánán assigned as his residence. Intriguing once more in 398 with Ílak, and dying the following year in close confinement in the fortress of Juzdez. He was reputed a learned and intelligent man, and by his command a commentary on the Kur'án in 100 volumes at a cost of 100,000 dinars, was compiled.

Al Ḥusain bin Ṭáhir whose coin is in the British Museum is most probably the man who was deputy for a brief period, for after Khalaf the sovereignty of Sijistán or Nimroz remained in the possession of the rulers of Ghaznín for some time, until, by the support of the Saljúk Sulṭáns, Alp Arsalán and Malik Sháh a great-grandson of Khalaf, by name Ṭáhir bin Muhammad bin Ṭáhir bin Khalaf, obtained the government of the country, and became the first of the "Maliks of Sijistán and Nimroz" as chronicled in the Ṭabáḳat.†

THE EARLY RULERS OF GHAZNÍN. 322—388 H.

It has already been noticed that the earlier Muḥammadan rulers in Ghaznín were governors subordinate to the Sámání sovereigns, and it is in association with the latter that most notices of Alptigín and Sabuktigín occur. That they were termed "Turkish slaves" does not necessarily imply that they were slaves in the common acceptation of the term. Although described as purchased by the Sámání nobles, they filled the position of trusted advisers, were entrusted with high civil and military commands, ranked among the chief personages in the State, and in fact very soon became its masters. It is unnecessary to recapitulate the few particulars given regarding these two more famous names, while to attempt any complete outline of the reign of Maḥmúd or his successors in Ghaznín would be beyond the scope of this already lengthy paper, but in connection with some of the coins figured it is necessary to briefly notice such scanty information as is available relating to the early governors, who have been almost entirely omitted from general history.

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* After this date money was coined in Sijistán in the name of Mahmud.

† A genealogical tree showing the relationships of the Suffaris and Sijistán governors is appended. [See also Major Raverty's article on "the Kings of the Saffáríún dynasty" in J. A. S. B. Pt. I. for 1885, p. 139.—ED.]

Of the origin of Alptigín, or Albtigín, beyond that he was a "Turk" the *slave* of the Sámání dynasty, no reliable account is forthcoming. According to Faṣíḥí and others, he was born in 267 H., a date more than doubtful, as it would make him 79 when appointed commander-in-chief in Khurásán. There is more evidence to show that he displaced "Lawík* and captured Ghaznín first in 322 H., and from that time had more or less to do with the administration of affairs there, although it is exceedingly improbable that his residence was continuous. In 346 he is spoken of as the Ḥájib and commander-in-chief of 'Abd-ul-Malik Sámání and by him also entrusted with the governorship of Hirát to which place he sent Isḥák-i-Ṭáhirí as his deputy. In 350 he had become one of the most, if indeed not the most, powerful Amir at the Sámání court, holding among other offices the governorship of Níshápúr. After some little friction with the court in connection with the election of Manṣúr the first to the throne, he went to Ghaznín in 351, and in 352 H. he died there, and was succeeded by his son Isḥák.

The governor Lawík, long a competitor for power in Ghaznín, almost immediately attacked Isḥák who was either defeated or considered it more desirable to retire on Bukhárá, whither he was "accompanied (in 353) by his father's *slave* Sabuktigín". At Bukhárá he obtained the formal investiture of government, and returned reinforced, Faṣiḥí says the following year, to Ghaznín, Lawík taking to flight. After a year at Ghaznín Isḥák died (early in?) 355 H., and was succeeded by Balkátigín, formerly chief of the Turkish troops under Alptigín.

Balkátigín as a successor of Isḥák has been passed unnoticed by most historians. In Muḥammad 'Ufí's Jámi'ul Hikáyát he is in two stories spoken of as ruler in Ghaznín, a brave but hard-drinking Amir, with Sabuktigín as his watchful Ḥájib and general-in-chief, who on one occasion at least saves Balkátigín's life. And in the Ṭabaḳát-i-Násiri, Minhaj-i-Siráj quoting from the last volumes of Abú-l-Faẓl-i-Baihaki, who wrote in the time of Maḥmúd, gives a circumstantial account of his elevation to power as follows: "Baihaki states, that during the reign of Abd-ul-Malik-i-Núḥ, the Sámání, there was a merchant named Naṣr, the Ḥáji who purchased Sabuktigín and brought him to Bukhárá. Perceiving in his countenance evident signs of capacity and energy, the Amír-i Ḥájib, Alptigín, purchased him. He accompanied his master into Ṭukháristán, when the government of that territory was entrusted to him; and subsequently, when the government of Khurásán was made over to Amír Alptigín, Sabuktigín attended him thither also. After some time had passed away, Alptigín, through the vicissitudes of fortune, retired towards Ghaznín, and subdued the territory of Záwulistán, and wrested Ghaznín out of the hands of Amír Abú-Bakr-i-Lawík.

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* The question as to who was Lawík, the Wáli of Ghaznín, is full of interest, but unfortunately history is a blank regarding him.

"Eight years subsequent to these events Amír Alptigín died, and his son, Isḥák, succeeded to his father's authority. He entered into hostilities against Lawík, but was defeated, and retired to Bukhárá, to the court of Amír Manṣúr, son of Núḥ, Sámání, and there continued until that ruler directed that aid should be afforded to him, when Isḥák came back again to Ghaznín, and regained possession of it. After a year Isḥák died, when Balkátigín, who was the chief commander of the Turkish troops, was raised to the government. He was a just and pious man, and one of the greatest warriors of his time. He exercised the authority for a period of ten years,* and died. Sabuktigín was in his service.

"After the death of Amír Balkátigín, Pírí succeeded to the authority. He was a great villain; and a body of people wrote from Ghaznín to Abú 'Alí-i-Lawík, and invited him to come there. Abú 'Alí-i-Lawík acceded to their request, and brought along with him the son of the Sháh, or king, of Kábul to assist him. When they reached the vicinity of Charkh, Sabuktigín with a body of 500 Turks, suddenly fell upon them, and defeated them, he also captured ten elephants, and brought them to Ghaznín.

"Such a great success having been gained by Sabuktigín and all having become quite sated with the villanies and misdeeds of Pírí, with one accord they raised Sabuktigín to the direction of affairs. On Friday, the 27th of the month of Sha'bán 366 H., the sovereignty of that province was settled upon him."

Mr. Thomas in the 2nd of his papers on the coins of the kings of Ghaznín,† puts the date of Alptigín's conquest of that city as 351 H., which is also the date given by Ferishta, and no doubt represents the date of his final visit, and quoting the Ṭabaḳát sentence beginning—"Eight years subsequent to these events" fixes his death in 359 H. But there is no reason why "these events" should specially refer to Alptigín's going to G͟haznín, and might equally relate to Sabuktigín's purchase. Indeed a few pages further on, the Ṭabaḳát gives the date of the birth of Maḥmúd as occurring "on the night of 'Ashúrá, the 10th of the month Muḥarram in the *year* 361 *H., in the seventh year of the government of Amír Balkátigín at G͟haznín.* Mr. Thomas mentions the occurrence of Balkátigín's name on certain coins struck at Balk͟h in 324, but considering how frequently the governors of these cities were changed, there is nothing at all improbable in his having held that charge, and inserted his name on the coinage there, as he subsequently did on the coinage of G͟haznín. Among the coins noticed by Mr. Thomas in the same paper is one described by M. Dorn* as struck in 359 H. by Balkátigín as ruler of G͟haznín, with the name of his Sámání suzerain, Manṣúr bin Núḥ. The description is as follows:

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* Copies of the work differ in regard to the number of years he reigned.

† Journal of the Royal Asiatic Society, Vol. IX, article IX, March, 1847, and Vol. XVII, article V, read March, 1858.

Obverse	لا اله الا ‖ الله وحده ‖ لا شریک له ‖ بلکا تکیـــن |
Margin	بسم الله [ضرب هذا] بعربة سنة تسع و خمسین و ثلثمائة
Reverse	لله ‖ محمد ‖ رسول ‖ الله ‖ منصور ‖ بن نوح

Margin illegible.

"The name of the mint عربة can stand for nothing but Ghaznah."

The legends of the coin now figured as No. X are very similar, though the mint and last figure of the date are wanting, what is left looks more like the final of خمس than anything else, which would make it 355 H. Major Raverty in his notes to the Ṭabaḳát gives the death of Balkátigín as occurring in 362 H., but does not quote his authority, the ill-conditioned Pírí succeeding him. In the following year (363) Pírí, or rather Sabuktigín for him, is said to have fought a battle with an army advancing from India for the purpose of seizing G͟haznín and to have completely defeated it. In 366, as given in the extract from the Ṭabaḳát above quoted, he was deposed, and Sabuktigín installed.

The acknowledgment of the Sámání line as Suzerains or Lords Paramount, by the insertion of their names on the coinage, still continued, and was common to all the G͟haznaví rulers, Sabuktigín, Ismá'íl, and Maḥmúd himself, at any rate until 389 H. when the house assumed independency; Sabuktigín being a particularly loyal supporter of the house. No. XI of the coins now figured is however an interesting novelty, probably a very early coin of Sabuktigín's struck for

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* In the Bulletin de l' Académie des Sciences de Saint Petersbourg in 1855.

Indian circulation, possibly as the Ḥajíb of Balkátigín. In the first of his papers above referred to, Mr. Thomas notices the early appropriation by the Ghaznavi monarchs of the device of the bull of Siva (Nandi), superscribed by the words Sri Samanta Dev, as first used on the coins of the Brahmanical kings of Kábul, and shows that the Ghaznavis had associated themselves in this way with their Indian possessions, by the combination of Mahometan titles with the old Hindu designs at least as early as the time of M'adúd in 432 H. In the second paper he gives examples of very similar pieces with the names in Kufic letters of Mas'úd 421 H., and of Muḥammad, his brother and predecessor.* In the coin now figured—from the Akra mounds near Edwardes-abád—the elephant and lion device of the Brahmanical kings has been rudely copied, with on the obverse the name in Kufic of Sabuktigín, and on the reverse حاجب ḥájib, the chamberlain or commander.† The three rings were possibly symbols of strength and unity, or as ingeniously suggested by Vambéry, "typical of power encircling the three zones, borrowed from the heraldry of ancient 'Irán," and subsequently adopted as a sign mark on the coinage of Timur. Some Indian cabinets may very possibly possess other similar Ghazni coins. Mr. Thomas notices four published in the earlier Journals of this Society, on which the Sanskrit inscription had not been clearly made out, but having the special title of Sabuktigín "Náṣir-ud-din-allah" clear in Persian.

Such coins might reasonably be expected to be even common. The Muslim conquerors for many reasons would probably find it both politic and convenient to continue for some time the local monies of the various provinces, and as a matter of fact, all over India, the coinage of newly conquered States, more especially the copper or mixed coinage in current use, remained in most cases long unaltered. Pure silver and gold was more easily recalled and re-issued, but even with this a very favourite plan, particularly with the Central Asian dynasties, was counterstriking the coin.

Sabuktigín ruled Ghaznín for a period of twenty years dying in 387 H., at the age of 56, at the village of Madrú-múe on the frontier of Balkh. His sons were Ismá'íl, Naṣr, Maḥmúd, Ḥusain, Ḥasan, and Yúsuf. Ismá'íl, who is always mentioned as playing a very subordinate part, and in all his father's campaigns seems to have been ignored, but who was in Gh͟aznín when his father died, succeeded, and was dethroned by his brother Maḥmúd in 388, after an offer of the sovereignty of Balkh͟ which he refused. Subsequently in 389* he was sent to the fortress of Júzjánán, and nothing further is heard of him.

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* A woodcut of the former is given at page 58 of his Pathan kings. The obverse having the recumbent Bull with श्री समन्त देव, the reverse the horseman with مسعود in Kufic above the horse's head.

† Along for comparison is given the obverse of a copper coin of similar size of Sri Samanta Deva. Both are rude, but there is a sad falling off in the Ghaznavi coin, while the elephant is hardly recognizable.

Maḥmúd was now recognised by the Khalifah, who in forwarding the robe of honour, added to his former titles that of Yamín-ud-daulat wa Amín ul-millat, 'right hand of the Empire and Guardian of the religion, and, the Ṭabaḳát adds, styled him "Sulṭán."† His son Mas'úd became another "right hand of the Empire," a "defender of Orthodoxy," a guardian of the true religion and of the true believers, the regulator of the Faith, and the friend of the Lord of the Faithful." In the same year 389 H. Maḥmúd had also returned to Kh͟urásán.

The chief events of his reign there have already been dealt with. His accession to the throne of Gh͟aznín marks his almost immediate rise to the supreme Muhammadan power in the East. "During these days," as Al 'Utbi puts it, "the victories of the kingdom and royalty of Yamín-ud-daulat and Amín al Millat commenced, and subsequently as time advanced, the tablet of his kingdom was gladdened, and the flame of his Empire blazed, and the star of his prosperity rose to a degree of happiness and power, until the pulpits of Islám became illuminated by the might of his august surnames, and his decree was current as destiny in all tracts and portions of the world; for God maketh royalty to come unto whom he willeth, and God is bounteous and wise."

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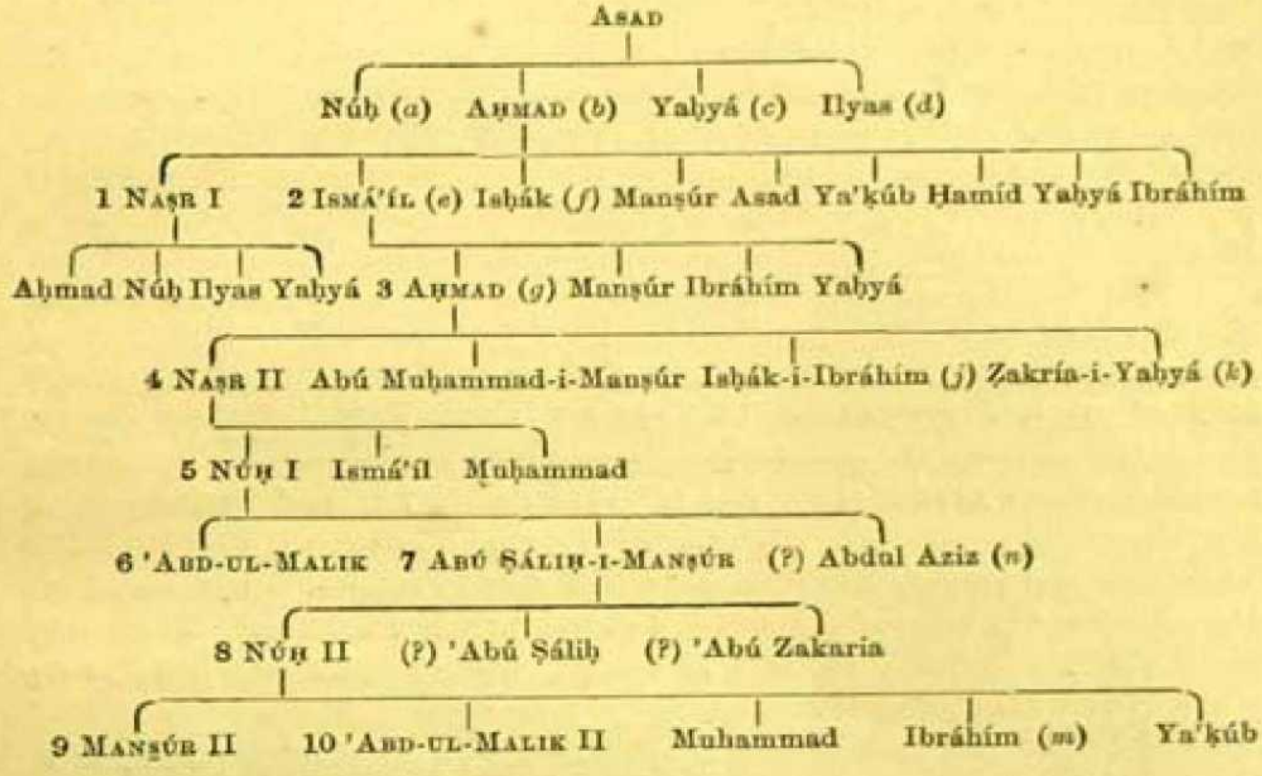
* These are the dates given by Faṣiḥí and may be accepted as most probable.

† There is, however, no evidence that he ever adopted the titles.

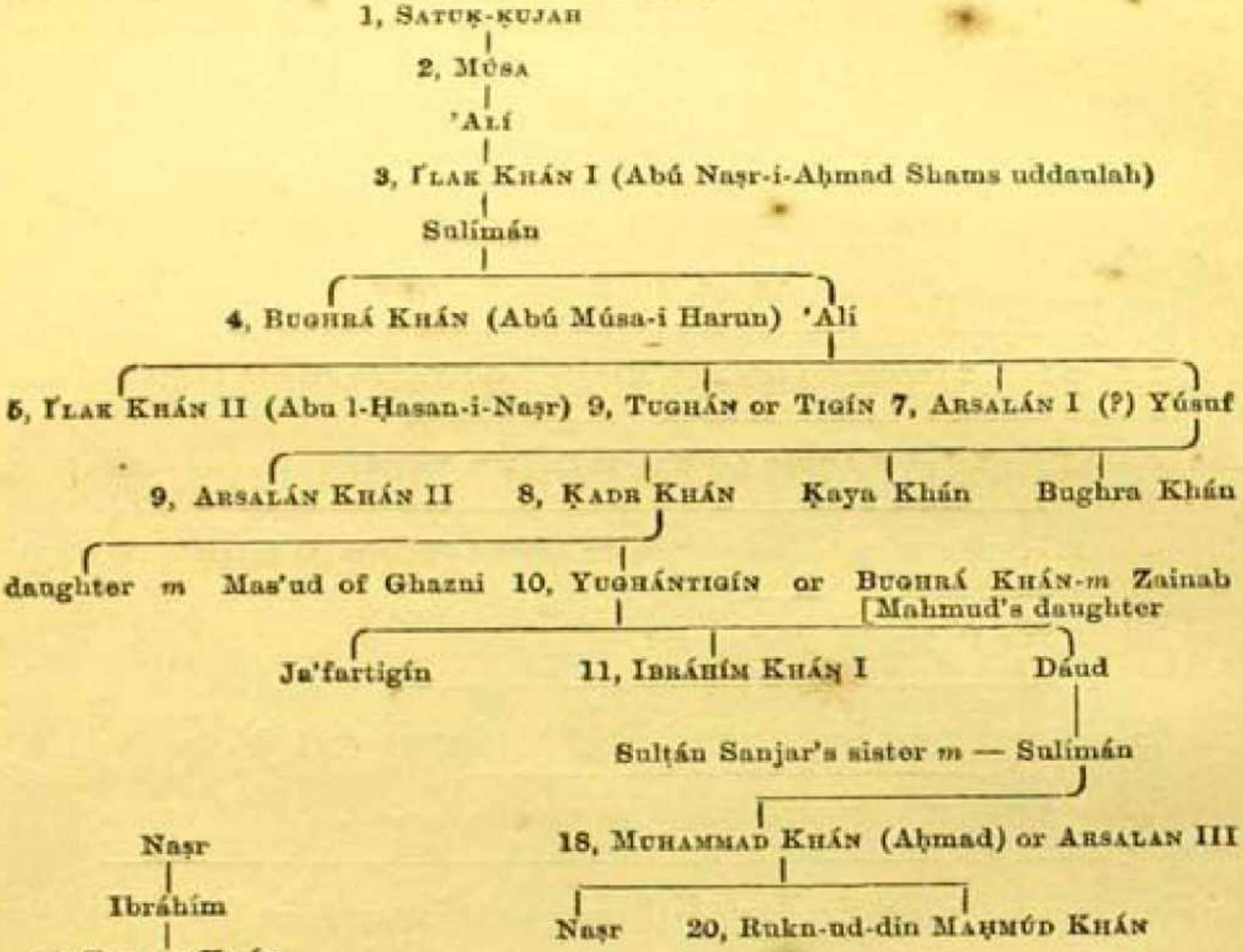
GENEALOGY OF THE SÁMÁNÍ DYNASTY.

Which, according to the Ṭabaḳát, is from Mídád, by Karkín, Bahrám Jash Nash, Bahrám Chúbín, Núshad, Núshir, Ṭamghan, Jashmán, and Sámán-i-khaddát to



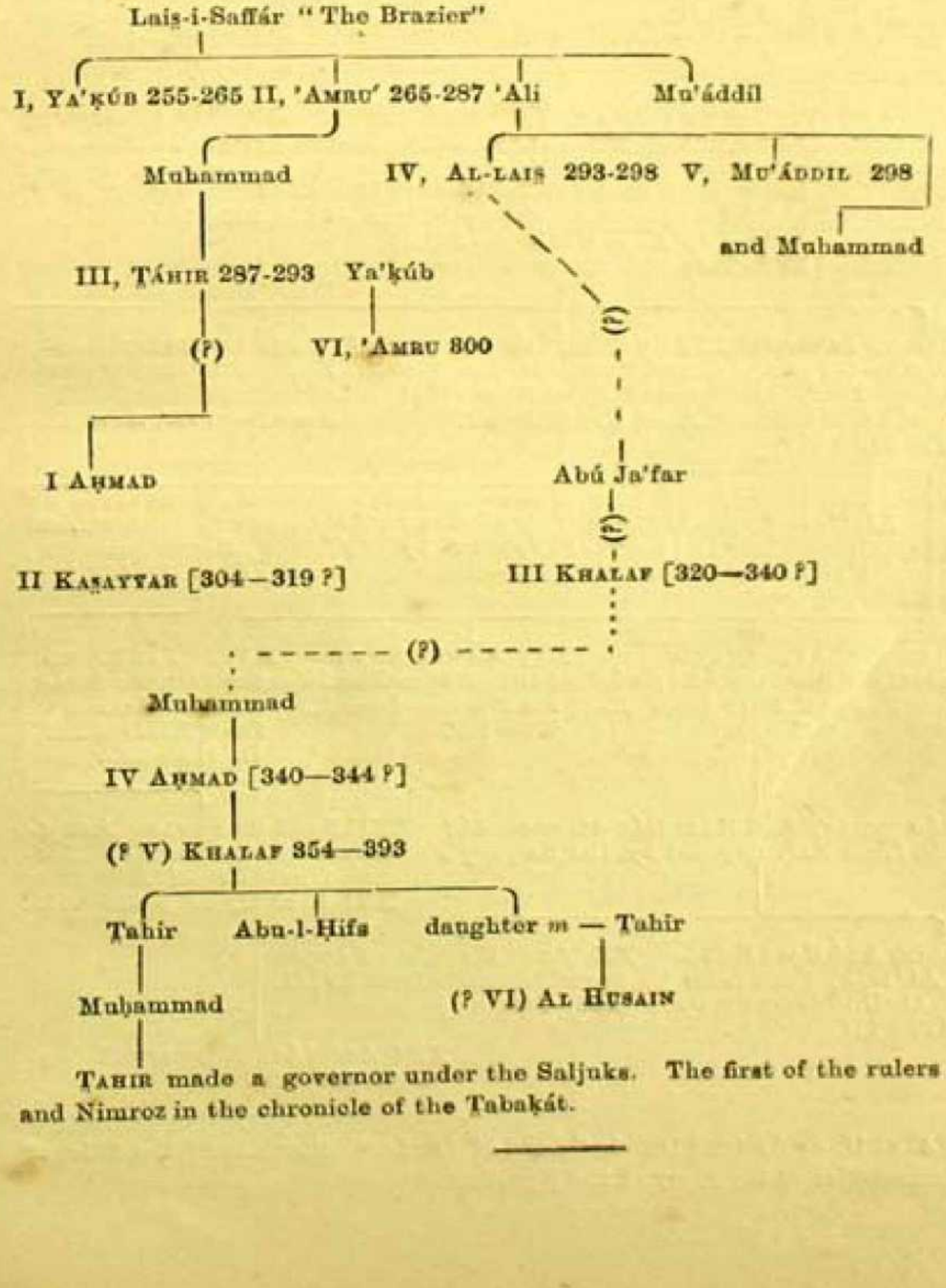
(*a*) Governed Samarḳand. (*b*) Farghánah and afterwards also Samarḳand, Kashghar and part of Turkistán. (*c*) Hirát and adjacent parts. (*d*) Shash and Isfanjab. (*e*) Governed Bukhárá before succeeding Naṣr. (*f*) Abú Ṣáliḥ Manṣúr, the son of this Isḥák governed Raí and subsequently Sijistán, where the people revolted and shut him up in Ark. Both Isḥák and Manṣúr revolted in the reign of Naṣr II 302 H. (*g*) Governed Gurgan before succeeding. (*j*) Seized the highlands of 'Irák and Khurásán 335 H. (*k*) Attacked Hirát 319 H. (*m*) Abú Ibráhím-i-Ismá'il, called Muntaṣir, who for several years carried on a desultory warfare. (*n*) Said to have been left as Regent at Bukhárá by Bughra Khán in 383 H.

SKETCH TREE OF THE TURKISTÁN KHÁNS.
(HOUSE OF AFRÁSIYÁB.)


1, Satuḳ-ḳujah
2, Músa
'Alí
3, Ílak Khán I (Abú Naṣr-i-Aḥmad Shams uddaulah)
Sulimán
4, Bughrá Khán (Abú Músa-i Harun)
'Ali
5, Ílak Khán II (Abu l-Ḥasan-i-Naṣr)
9, Tughán or Tigín
7, Arsalán I (?)
Yúsuf
9, Arsalán Khán II
8, Ḳadr Khán
Ḳaya Khán
Bughra Khán
daughter m Mas'ud of Ghazni
10, Yughántigín or Bughrá Khán-m Zainab [Mahmud's daughter
Ja'fartigín
11, Ibráhím Khán I
Dáud
Sultán Sanjar's sister m — Sulimán
18, Muhammad Khán (Aḥmad) or Arsalan III
Nasr
20, Rukn-ud-din Maḥmúd Khán
Naṣr
Ibráhím
12, Tafkaj Khán
13, Naṣr (the Kháḳán) — m daughter of Alp Arslan,
'Isa
14, Khizr Khán
Sulṭán Malik Sháh m daughter of (Turkán Khátún)
15, Aḥmad Khan
Naṣr
'Umr Khán
17, Ḳadr or Kundúz Khan
16, Maḥmúd Khán
Abd ul Múmin
'Alí
19, Hasantigín
21, Tamghaj
22, Jalál ud din 'Ali Khiẓr Khán
23, Sulṭán 'Usmán — m daughter of Muhammad Sháh of Khwárazm.

This table is only given as tentative. It does not agree entirely with Major Raverty's dynastic list, and in some other respects alterations may be necessary. But it may serve for comparison with other information and inscriptions on other coins.

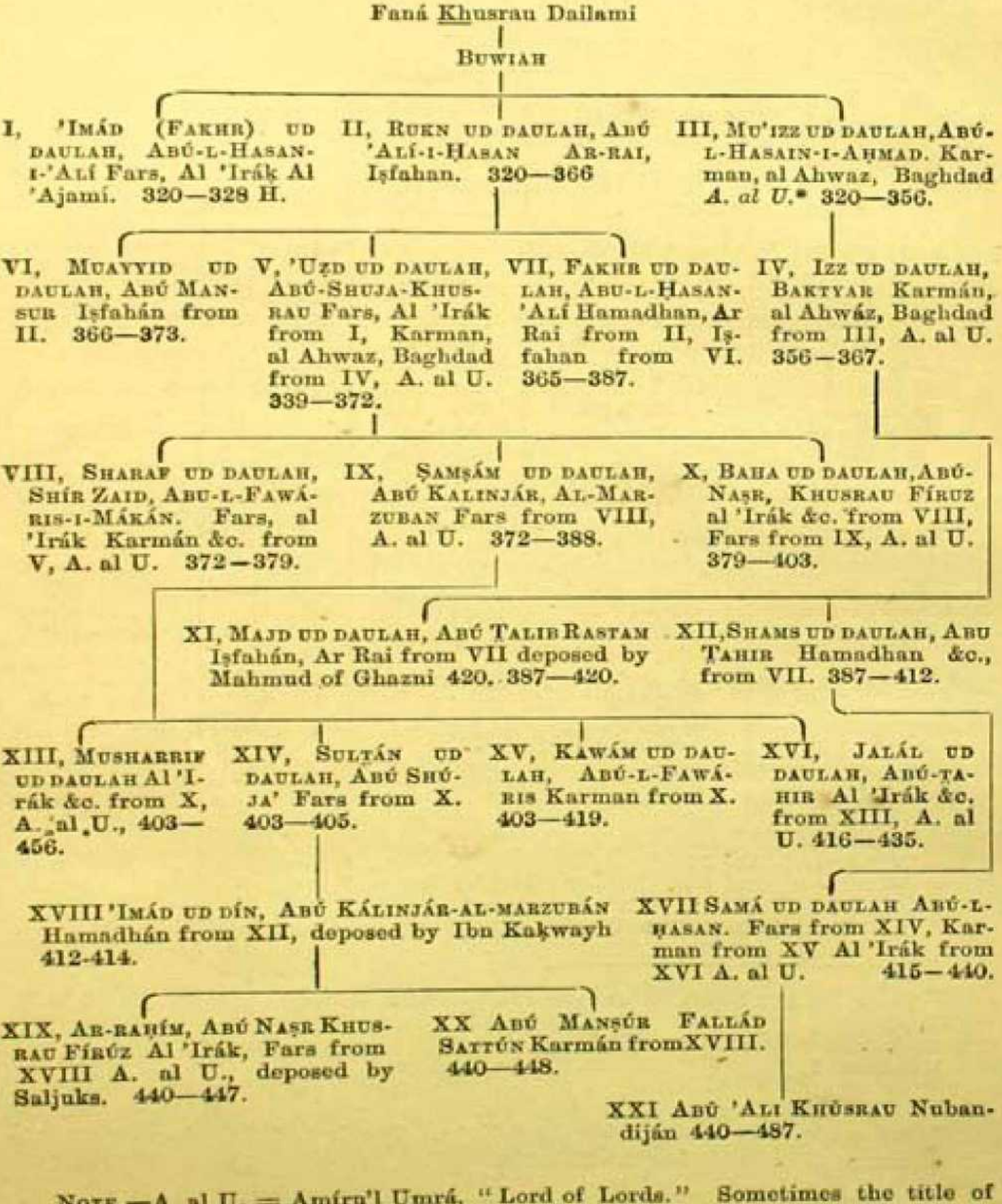
SKETCH TREE
OF THE ṢAFFÁRÍS AND SIJISTÁN GOVERNORS.



Ṭahir made a governor under the Saljuks. The first of the rulers of Sijistán and Nimroz in the chronicle of the Tabaḳát.

GENEALOGY OF THE DAILAMIS OR BUWIAHS.

(After Stanley Lane Poole)



Faná Khusrau Dailami

Buwiah

I, 'Imád (Fakhr) ud daulah, Abú-l-Hasan-i-'Alí Fars, Al 'Irák Al 'Ajami. 320—328 H.

II, Rukn ud daulah, Abú 'Alí-i-Ḥasan Ar-rai, Iṣfahan. 320—366

III, Mu'izz ud daulah, Abú-l-Hasain-i-Aḥmad. Karman, al Ahwaz, Baghdad *A. al U.** 320—356.

VI, Muayyid ud daulah, Abú Mansur Iṣfahán from II. 366—373.

V, 'Uẓd ud daulah, Abú-Shuja-Khusrau Fars, Al 'Irák from I, Karman, al Ahwaz, Baghdad from IV, A. al U. 339—372.

VII, Fakhr ud daulah, Abu-l-Ḥasan-'Alí Hamadhan, Ar Rai from II, Iṣfahan from VI. 365—387.

IV, Izz ud daulah, Baktyar Karmán, al Ahwáz, Baghdad from III, A. al U. 356—367.

VIII, Sharaf ud daulah, Shír Zaid, Abu-l-Fawáris-i-Mákán. Fars, al 'Irák Karmán &c. from V, A. al U. 372—379.

IX, Ṣamṣám ud daulah, Abú Kalinjár, Al-Marzuban Fars from VIII, A. al U. 372—388.

X, Baha ud daulah, Abú-Naṣr, Khusrau Fíruz al 'Irák &c. from VIII, Fars from IX, A. al U. 379—403.

XI, Majd ud daulah, Abú Ṭalib Rastam Iṣfahán, Ar Rai from VII deposed by Mahmud of Ghazni 420. 387—420.

XII, Shams ud daulah, Abu Ṭahir Hamadhan &c., from VII. 387—412.

XIII, Musharrif ud daulah Al 'Irák &c. from X, A. al U., 403—456.

XIV, Sultán ud daulah, Abú Shúja' Fars from X. 403—405.

XV, Kawám ud daulah, Abú-l-Fawáris Karman from X. 403—419.

XVI, Jalál ud daulah, Abú-ṭahir Al 'Irák &c. from XIII, A. al U. 416—435.

XVIII 'Imád ud dín, Abú Kálinjár-al-marzubán Hamadhán from XII, deposed by Ibn Kaḳwayh 412-414.

XVII Samá ud daulah Abú-l-ḥasan. Fars from XIV, Karman from XV Al 'Irák from XVI A. al U. 415—440.

XIX, Ar-raḥím, Abú Naṣr Khusrau Fírúz Al 'Irák, Fars from XVIII A. al U., deposed by Saljuks. 440—447.

XX Abú Manṣúr Fallád Sattún Karmán from XVIII. 440—448.

XXI Abû 'Ali Khûsrau Nubandiján 440—487.

Note.—A. al U. = Amíru'l Umrá, "Lord of Lords." Sometimes the title of the Chief Commander of the army of the Khalifat.

COMPARATIVE CHRONOLOGICAL TABLE.

KHALIFS OF BAGHDAD.	SÁMÁNÍS.	SAFFÁRÍS AND SIJISTAN GOVERNORS.	RULERS IN GHAZNI.	TURKISTÁN KHÁNS.
Al Muhtadí 255—256		Ya'ḳúb 255—265		
Al M'utamid 256—279	Nasr bin Aḥmad 261—279	'Amrú 265—287		
Al Mu'taẓid 279—289	Ismail bin Aḥmad 279—295	Ṭáhir 287—293		
Al Muktafi 289—295		Al Laiṣ 293—298		
Al Muḳtadir 295—320	Aḥmad bin Ismail 295—301	Mu'addil 298		
Al Káhir 320—322	Nasr II bin Aḥmad 301—331	'Amrú 300	Alptigín 322—352	
Ar Rázi 322—329		Aḥmad		
Al Muttaḳi 329—333	Núḥ I bin Naṣr 331—343	Kaṣayyar 304—319		Ṣatuḳ Khujah
Al Mustakfi 333—334		Khalaf 320—340		Músa
Al Mutí' 334—363	'Abd al Malik I 343—350	Ahmad 340—344	Ishák 352—355	Ílak Khán I
Aṭ Táí'lillah 363—381	Mansur I bin Núḥ 350—366	Khalaf 354—393	Balkátigín 355—362	Bughrá Khán 383
Al Kádirbillah 381—422	Núḥ II bin Mansur 366—387		Pírí 362—366	Ilak Khan II 383—403
Al Káim biamrillah 422—467	Mansur II 387—389		Sabuktigín 366—387	Tughán 403—408
	Abdul Malik II 389		Ismail 387—388	Arsalan 408
	Muntasir 389		Maḥmúd 388—421	Kadr Khán 423
				Arsalan Khan II
				Bughra Khan II 439

SA'MA'NI'S.

I. Ismá'il bin Aḥmad Æ ·99—55 grains Samarḳand 280 H.

Obv.	Rev.
	لله
لا الــه الا	محمـــد
الله وحده	رســـــول
لا شريک له	اللـــــه
	س
Margin بسم الله ضرب هذا الفلس بسمرقند سنه ثمانين و مائتين	Margin مما امر به الامير اسماعيل بن احمد عزه الله

II. Naṣr II bin Aḥmad Æ ·96—41 grains Bukhárá 315 H.

Obv.	Rev.
	لله
لا اله الا	محمد
الله وحده	رسول
لا شريك له	الله
	بخ
Margin بسم الله ضرب هذا الفلس ببخارا سنه خمس عشرة و ثلثمائه	Margin لله الامر من قبل و من بعد و يومئذ يفرح المومنون بنصر الله

III. Ditto Æ ·97—47 grains Bukhárá 322 H.

Obv.	Rev.
	لله
Inner Margin لا اله الا الله وحده	محمد
لا شريک له	رسول
Outer ,, بسم الله ضرب هذا	الله
الفلس ببخارا سنه اثنين و	بخ
عشرين و ثلثمة	Margin (same as in No. II.)

Compare No. 377, Vol. II Catalogue of British Museum, Oriental Coins.

IV. Núḥ bin Naṣr Æ ·95—62 grains Bukhárá 336 H.

Obv.	Rev.
∴	لله
لا اله الا	محمد
الله وحده	رسول
لا شريک له	الله
Margin بسم الله ضرب هذا الفلس	[سهل بن نوح]
[ارا] سنه ست و ثلثين و ثلثمائة	Margin (same as in No. II.)

V. 'Abd al Malik Æ ·75—32 grains Bukhárá [3]50 H.

Obv.	Rev.
لا اله الا	عبد
الله وحده	الملك
لا شريك له	بخ
Margin بسم الله ضرب هذا الفلس [.. ارا] سنه خمسين و	Margin (same as in No. II but partially effaced.)

VI. Manşúr I bin Núḥ Æ 1·1—61 grains Bukhárá 358 H.

Obv.	Rev.
	لله
[فايق]	محمد
لا اله الا	رسول الله
الله وحده	المطيع لله
لا شريك له	منصور
	بن نوح
Margin بسم الله ضرب هذا الفلس	Margin مما امره الامير السيد الملک
ببخارا سنه ثمان و خمسين و ثلثمية	المظفر ايده الله علي يدي ابي
	بكر المهزح

VII. Ditto Æ 1·15—56 grains. Farghánah 358 H.

Obv.	Rev.
لا اله الا	لله
الله وحده	محمد
لا شريك له	رسول الله
Inner margin على يدي ا... صالح منصور	الملك المظفر
سنه ثمان و خمسين و ثلثمائة	منصور
	بن نوح
Outer ,, بسم الله ضرب هذا الفلس	
بفرغانه [فا و لله ابعو]	Margin مما امربه الامير احمد بن منصور
الخليفه احمد على	مولى امير المومنين

Compare No. 411 Vol. II, Cat. B. M. Oriental coins. The inner margin of coin drawn reads Abú Sáliḥ-i-Manşúr instead of عبدالله الساصي

VIII. Ditto Æ ·8—38 grains. Mint illegible, 350 H.

Obv.	Rev.
لا اله الا	لله
الله بة	محمد
يضربن	رسول الله
احمد	منصور
Margin ...الله ضرب...فلس...	بن نوح
...خمسين و ثلثه...	Margin لله الامر الخ

This coin may possibly have been struck by one of the many governors or refractory princes who in the early years of Núh were constantly setting up for themselves petty kingdoms. There are 2 or 3 coins in the B. M. catalogue struck at Andarábah having the name of احمد بن سهل on the obverse. Possibly another.

IX. Núh II bin Manṣúr Æ ·8—30 grains. Bukhárá (3) 80 H.

Obv.	Rev.
[تكمرون] لا اله الا الله وحده لا شريك له [الصـ...ـد] [ه]	لله محمد رسول الله نوح بن منصور ....
Margin بسم الله ضرب ... ببخا را سنة ثمنين	Margin لله الامر الخ

GHAZNAWI'S.

X. Balkátigín. Æ ·97—56 grains. Mint wanting 35 [5] H.

Obv.	Rev.
لا اله الا الله وحده لا شريك له Margin بسم الله ضرب هذا له ...... ن و خمسين و ثلثمائة	محمد رسول الله منصور نوح بلكاتكين Margin لله الامر الخ

XI. Subuktigín. Æ 70—29 grains (Ghaznah ?) no date.

Obv.	Rev.
حاجب above a rude elephant with 3 rings, ... غذ on the body, possibly part of غذنه.	سبكتكين above a rude lion as on the coins of Brahman kings of Kabul.

XII. A copper coin of Sri Samanta Deva Æ ·70—42 grs.

KHA'NS OF TURKISTA'N.

XIII. I'lak Khán II Naṣr, Æ 1·1—44 grains. Farghánah 401 H.

Obv.	Rev.
In centre of circle 4 times repeated لله Between circle and outer margin لا اله الا || الله وحده || لا شريك || له نصر الله Outer margin بسم الله ضرب هذا الفلس بفر غانه سنه احدي و اربعمائة	لله محمد رسول الله نصر بن علي Margin مما امر به الامير نصر بن علي مولى امير المومنين

XIV. Ditto Æ 1·1—48 grains. Samarkand (403).

Obv.	Rev.
In centre ornament. As triangle	In centre ornament. As triangle
لااله الا || الله وحده || لا شریک له	لله محمد || رسول الله || ايلك
Margin بسم الله ضرب هذا الفلس	Margin مما امر به الامير السيّد الملك
بسمرقند سنة [تلث و اربعمائة]	......نصر ايده الله

XV. Ditto Æ 1·1—42 grains. Mint wanting 4 xx H.

Obv.	Rev.
لا اله الا	لله
لله وحده	محمد رسول
لا شریک له	الله القادر بالله
	نصر بن علي
Margin بسم الله ضرب	ايلك ——
...... و اربعمائة	Margin لله الامر الخ

With the name of the Khalif Al Kádir B'illah.

XVI. Ditto Æ 1·05. Bukhárá 4 xx H.]

Obv.	Rev.
	لله
Three lines between star, ornaments under	محمد
	رسول
	الله
......الا || الله وحده || لاشريك له	ايلک
	Margin بسم الله ضرب هذا الفلس ببخارا
Margin of date.	... و اربعماية

XVII. Saif-ud daulah (Jafri ?) Tigín Æ 1·1—54 grains. Bukhárá 407 H.

Obv.	Rev.
ن	ن
لا اله الا	محمد
الله وحده	رسول الله
لا شريك له	سيف الدوله
	[جفريتكين]
Margin بسم الله ضرب هذا الفلس ببخارا	Margin مما امر به الامير السيّد ابي علي
سنه سبع و اربعماية	الحسين بن منصور ايده الله

The coin described by M. Tiesenhausen in his notice of Count Stroganoff's collection, No. 31, is almost identical, except the year reads 406 H.

XVIII. Arsalán Ílak—Yúsuf Æ 1·2—68 grains. Bukhártá.

Obv.	Rev.
	لله
In centre ايلك	محمد
محمد Six times repeated, forming stars.	رسول الله
	[ارسلان] ايلك
Margin بسم الله ضرب هذا الفلس	يوسف
ببخارا	Margin لا اله الا الله وحده لا شريك
The date unread.	له [ملك]

Compare a coin described by M. Tiesenhausen (No. 32 of above notice) of Arsalán Ílak—Yúsuf bin 'Alí struck at Kash 429 H.

XIX. Ditto (?) Æ 1·2—76 grains. Bukhártá.

Obv.	Rev.
Beneath an ornament ارسلان	Beneath an ornament ايلك
Margin .... هذا الفلس بخارا	Margin ....
سنه	شريک له [العدو] ......

A similar coin is described in M. Tiesenhausen's notice. No. 35.

XX. Ditto Æ 1·2—64 grains. Bukhártá 4 xx H.

Obv.	Rev.
ن	ن
ايلك	ارسلان
Margin بسم الله ضرب هذا الفلس	Margin لا اله الا الله .. ـدہ لا شريک
ببخارا سنه ...... و ار .. مائة	[له] ......

XXI. Arsalán Khán—Yúsuf Æ 1·2—68 grains 428 H.

Obv.	Rev.
الله	لله
[مـحـ]	مـحـمـد
Inner margin لا اله [الا] الله وحده	[رسو] ل الله
لا شريك [له]	ارسلان [خان]
بسم الله ضرب ... [سنه] ,,	يوسف
ثمان عشر [ين] و [ار] بعماية	Margin illegible.

XXII. Arsalán Tigín Æ 1·28—53 grains. Bukhárá 426 H.

Obv.	Rev.
	[عد]
In ornamented triangle [شمس]	محمد رسول الله
لدولة	[ارسلان] تكين
Margin بسم الله ضرب هذا الفلس ببخارا سنة ست و عشرين و اربعماية	Margin لا اله الا الله وحده لاشريك له القائم بامر الله

With the name of the Khalif Al Ḳáim Biamrillah.

XXIII. Arsalán (……… ? Æ·85—54 grs. Mint and date doubtful.

Obv.	Rev.
ملك	ابو شجاع
لا اله الا	محمد رسول الله
الله وحده	القائم بامر الله
لاشريك له	ارسلان [بها]
المشوف	[ن]
Margin بسم الله ضرب هذا الدرهم ………………	Margin لله الامر الخ

Also with the name of the Khalif Al Ḳáim Biamrillah.

XXIV. Tughán Khán. Æ 1·05—71 grains. Mint wanting 4 xx.

Obv.	Rev.
[۴]	لله
لا اله الا	محمد رسول الله
الله وحده	القادر با الله الملک
لا شريك له	طغان خان
Margin …… بسم الله ضرب هذا الدر سنة …… و اربعماية	Margin محمد رسول الله الخ

With the name of the Khalif Al Ḳádir B'illah.

XXV. Ḳadr Khán ………… Yúsaf Æ 1·1—55 grains. Mint and date obscure.

Obv.	Rev.
شهاب	
لا اله الا	محمد رسول الله
الله .. ده	القا ……… قدر خان
لا … يك له	……… يوسف
دولة	
Margin …… بسم الله ضرب هذا الدر سنة …………	Margin محمد رسول الله الخ

XXVI. Tamghaj (?) Æ 1·16—44 grains Samarḳand.

Obv.	Rev.
In centre [..ن الد]	In centre طمغاج
Margin بسم الله ضرب هذا الفلس	Margin unread
بسمرقند سنه	

GOVERNOR OF SIJISTAN.

XXVII. Khalaf Æ ·98—40 grains Sijistan 33 x H.

Obv.	Rev.
لا اله الا	لله
الله وحده	محمد
لا شریک له	رسول
	الله
Margin بسم الله ضرب هذا الفاش	خلف
بـجستان سنه ... و ثلثین و ثلثمائة	Margin لله الامر الخ

BUWAIHI.

XXVIII. Æ 1·05—41 grains— 404 H.

Obv.	Rev.
[مکر]	
الدوله	محمد
الطـائع	رسول الله
Margin بسم الله ضرب ... ذا الفلس	[احمد بن] علي
[بالسلك] سنه اربع - اربع مائة	Margin لله الامر الخ

MAḤMUD OF GHAZNI.

XXIX. Maḥmúd bin Amir Sabuktigín Æ ·80—46 grains Níshápúr [38] 6 H.

Obv.	Rev.
لا اله الا الله	لله
وحده لا شريك له	محمد رسول لله
الطائع لله	الولي سيف الدولة
نوح بن منصور	محمود بن امير سبكتگين
Margin هذالدارهم بنيسا پور	محرم
سنه ست	Margin لله الامر الخ

XXX. Maḥmúd Æ ·90—4 grains.

لا اله الا الله وحده لا شريك له	محمد رسول اللة القادر با اللة محمود

XXXI. Maḥmúd Abū-l Ḳasim Æ ·95—58 grains. Ghaznah.

In centre of circle within square. [ضرب] || [هذ الفلس] || بغزنة || Outside square. لا الة [الا] || الله وحده || لا شريك له || القادر با [لله]	محمد رسول اللة يمين الدولة ابو القسم Margin illegible.

XXXII. Maḥmúd Æ ·95—60 grains.

In centre of circle محمود Margin لا اله الا || الله وحده .. || لا شريك ... ||	لله مـحـمـد رسول الله القا در با لله يمين الدولة Margin illegible.

I have to express my acknowledgement and best thanks to Messrs. Rodgers, Gosset, Stulpnagel and many other numismatic friends who have kindly placed their cabinets at my disposal. To the first named gentleman, the present Archæological Surveyor of the Punjab, but whose numismatic fame is of long standing, I am specially indebted for assistance in many ways, and not a few of the coins in these plates are the result of his many years of patient collection and research. Nos. XIII, XXIV and XXV are from tho collection of Col. Gosset.

ERRATUM.

Coin No. II. Reverse margin second line *for* يومن بفتوح *read* يومئذ يفرح

Place names in Merwára.—*By* R. S. Whiteway, B. C. S., *Ajmer.*

The British District of Merwára is a narrow slip of country between 70 and 80 miles long and from 15 miles to 1 mile broad. The head quarters are at Nyashahr or new Beáwar, a station on the Rajputana line of railway. The district commences some 5 or 6 miles north of this. Dewair the extreme connected point is 66 miles south, and some 10 miles south of it are a few disconnected villages. The district lies along the backbone of the Aravalis with very little level ground. Around Beáwar the general level is about 1500 ft. above the sea, the highest point is Goramji some 50 miles south which rises to over 3000 ft., in the east the Meywar plain slopes gradually away from the foot of the hills, but in the west the drop to the plains of Beáwar is considerable averaging about 1000 ft. and for some distance the country is wild jungle and rocky ravine. Cultivation is carried on in the valleys, the population presses heavily on the good land while the soil is naturally thin, hence heavy manuring and high cultivation require large herds of cattle. As the rainfall is precarious nearly every village has one or more tanks to retain the surface flow off, either to give direct irrigation or retain the water in the wells by percolation. For administative purposes there are two tahsils, Beáwar in the north and Todgarh (called after the well-known Col. Tod) in the south, Todgarh is the name of the tahsil only and not of any village, the head quarters are in the village of Barsawara an elevation of about 2500 ft. The inhabitants of the country are Mers (cf. Meru, a hill) a jovial set of men somewhat given to drinking. There are a few traces of early clans (mostly pastoral as Gujars) whom the Mers ousted—but speaking generally all the colonization has been done by this latter race—and that mainly within the last 60 years since the English came into the country. Before we took it the inhabitants scourged the neighbouring countries by their raids. They were not numerous and were mainly collected in a few inaccessible villages. They were reclaimed by Col. Hall and Col. Dixon who raised the Merwara batallion and by building tanks rendered settled habits possible. It is still their boast that the English alone conquered them. Their claims as to origin range high, but it is almost certain that they were composed mainly of outlaws who found here a protection from any settled form of government. To the south there are a few Bhils.

Nominally the Mers are divided into Mahomedans and Hindus but the division is little more than a name as all intermarry, and whether a woman is buried or burned depends on the nominal religion of her husband. Their language is a form of Hindi, but with peculiarities that divide it from that of Meywar on the east, of Marwar on the west, and of Ajmere on the north. It is to illustrate this language and to show how place names are in the process of formation that I have put together the appended list. The names consist of (*a*) Villages on the Government list (*b*) Tanks where these differ from the villages (*c*) Hills, valleys and streams. (*a*) Villages. Hamlets are now springing up in every direction—danger alone in such a difficult country could keep the people in large villages--only very few names of hamlets are given as they are generally called after their founders as Basiajaga—Jaga's hamlet or Gudha Bíram, Biram's hamlet. Of the 330 villages on the Government list, 160 are called after some person, caste or local god—the names of most of the others are analysed below. These names have suffered great mutilation at the hands of the Persian writers of the offices. I have tried in each case to get the oldest and real form of the word, and then if I could trace any thing in the history, local position or peculiarity of the village, to explain it. As might have been expected 50 years wear and tear have caused some phonetic changes but in all cases the names are peculiarly appropriate. The older villages Jhak, Aslum, Chhapli have names more or less connected with the predatory habits of the people. Many refer to the pastoral habits as Mewása—others refer to the physical peculiarities of the inhabited site as Dholíchat and others to that of the village lands as Sendra. The names in class B are not so worn as those in class A while those in C are not worn at all. These latter are seldom used far from their immediate neighbourhood—though well-known there, and they have never been reduced to writing. Only a few have been given as they are innumerable. These names are very valuable as giving the real speech of the people as opposed to the language taught in schools—this speech is very rich in names for every kind of rock, stone, ravine and embankment. Wild animals are not numerous—there are a few tigers, bears, leopards, sambhar and nilgáí—of these the tiger and sambhar are represented in this list—the bear (richh) leopard (begar) and nilgáí (roz) are not—of animals now extinct the plainest traditions refer to the wild buffalo (arna), but I can find no name unless it be the hamlet of Arnálí. The local explanation of Arnálí however that here cowdung (also called arna) was collected in the jungle seems a probable one. Elephants, if there ever were any, have left no tale. The references to local trees and bushes are very frequent. I may add that names are given from some peculiarities and not from general characteristics—thus the few streams and tanks whose name is compounded with khará 'salt' show that the majority of them have sweet water.

A.

Áḍábálá	आडाबाला	A tank and a locality in the hills—It means (the embankment) across the stream for the former, and the stream across (the way) for the latter.
Áḍámál	आडामाल	The plain between, Jánwar áḍámál pará, would mean that the animal had put a considerable distance between you and it.
Adharsíla	अधरसीला	The name of a hill—The slipping slab—Síla is a slab of rock not apparently fastened to the ground (see Dholíchát)—On the top of this hill is a large boulder with a huge slab on it apparently separate but really joined which rests at an angle of less than 45° with the perpendicular.
Áḍibáṭ	आडीबाट	Across the path (báṭ.)
Áḍwála	आडवाला	A tank—The one across (the stream.)
A′ku ká thák	आकुकाथाक	The clearing of the madar bush.
A′mner	आमनेर	A village. Amangarh the fort of safety.*
Anákar	अनाकर	A village. Corruption of Anághar, Ana being a man whose house stood on the curious boulder now surmounted by Allahjikathán.
A′ndhídeorí	आंधीदेवरी	A village. Andhí is hidden—deorí the diminutive of deora a temple.
A′njnákirel	आंजनाकिरेल	The valley of the spring. Rel is used for a cultivated and irrigated valley.
A′nspahár	आंसपहार	A hill on which is a jogi's hut (see Dewatan) Pahár is not a word locally used in common conversation.
Anṭálí	अंटाली	A village. Ant 'intention' ṭál dena 'to change.' This refers to the story of its foundation.

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* More probably "mango-town" from *ám* mango and nair=nagara.—Ed.

A'onliádho	आंवलीयाधो	The pond of the áonlá trees (*Phyllanthus emblica.*)
Arází gwáraṛí	आराजीगवारडी	A village. Arázi is an office word Gwáraṛi is from gawárí a grazing place where there are no houses (cf. Gwár.)
A'san	आसन	A village inhabited by jogís (see Dewatan.)
Athún	अथुन	One of the old Magra villages usually in offices spelt Hathun. It means western and was given by the Meywar Thákurs who suffered from raids from it. The point of the compass are Daráú, North. Lankáú, South. Ugání, East (ugna to spring up as corn.) Athuní, West.

B.

Baḍálangá	बडालंगा	The big valley. Langá is a valley on the top of a hill between ridges often parallel to the axis of the range. Láná is an opening in the range if the dip be level with the ground.
Bádní	बादनी	A village Corrupted from Bájní. Bájní is commonly applied to rocks which are hollow and give out a sound when struck.
Bágháná	बाघाना	A village. Bágh, a tiger.
Bagaṛ	बगड	A village. Bagar is a cave and also an uninhabited waste.
Bághmál	बाघमाल	A village. Bágh, a tiger. Mál, a plain.
Bagṛajhámp	बगडाझांप	Bagṛa, a cave and jhámp, a waterfall.
Bagri	बगडी	A village. Diminutive of bagaṛ (q. v.)
Báharwás	बारवास	A tank. Corruption of bárabás.
Bálácharhat	बालाचारहट	A village. Corruption of balacháṭ (see Dholichát).

Baldmárá langá	बलदमारालंगा	The valley (where the tiger) killed the bullock. For langá, see Badá langá.
Bandardho	बंदरधो	The monkey's pond (dho).
Bánská dántá	बांसका दांता	The bambu ridge. Dántá and magra both mean a range of hills or a ridge.
Bára	बार	A village, from the 12 inhabited sites subordinate.
Barjáliá	बरजालीया	A tank in Bagar towards Barjál.
Baṛkochrán	बडकोचरां	A village. A corruption of gaṛh kochran. Garh, a fort and kochran, a small hole. The name is a derisive one applied to a fort made by one of the founders of the village.
Baṛkálá	बडकाला	A village. The banian in the hollow.
Baṛon ka chauṛá	बडों का चौडा	The plain of the banians (*Ficus bengalensis*).
Barsa	बरसा	A hill so called as the neighbours say that when clouds collect over it, it is a sign, that rain is coming.
Barwáṛíkhet	बरवाडीखेत	The field of the barwárí grass. Barwárí is a kind of soghum, also called barrú.
Basí	बसी	A village. The inhabited site.
Baṭáoṛa	बटावडा	A tank. The one shared. It is owned by two villages.
Báwanká	बावनका	A tank on the left hand side of Barar which faces east.
Beáwar	ब्यावर	A village. It is said that the Jaipur Rání who built the Kalinjar (q. v.) embankment gave birth (byáí) to a son here and hence the name.
Báyalán	बायलां	A village. A corruption of mailan, inside (the hills).
Bhainsápá	भैंसापा	A village. Buffaloes feeding-place.
Bhainsapag	भैंसापग	The buffaloes' footmarks.
Bhairondho	भैरोंधो	Bhairon's (a deity) pond.
Bhánḍán ká párá	भांडांकापारा	Bhándá is a drummer. Pára or paraband are fields made level on sloping ground by building retaining walls at the lower end.

Bhándán kí kuṛí	भांडां की कुडी	Bhándá is a drummer. Kuṛi is the diminutive of kuṛa, a well.
Bhanwrkund	भंवरकुंड	Bhanwr are the largest kind of honey-bees, and kund is a pond. Bhanwr is also the title of the son of a Kunwar, and grandson of a living Rao or Rája.
Bhanwrráj ká relá	भंवरराजका रेला	Bhanwr raj is an honorific title applied to the bees who are worshipped here. For rela see Anjna ka rel.
Bhartwa	भरतवा	A village. Bharánt division, referring to the quarrels of the founders.
Bhílon ká khet	भीलों का खेत	The Bhil's field.
Bhílwálá	भीलवाला	A tank. The one made by a Bhil.
Bhím	भीम	A village and several tanks; from a man's name.
Bíchhu chaurá	बीछुचोडा	A tank. The scorpions' plain.
Bílyáwás	बिल्यावास	A village. From the bíl or bel tree (*Ægle marmelos*).
Billankurí	बीलनकुडी	Kuri, diminutive of kuṛa, a well. Billa is a small caterpillar in the rains injurious to cattle that eat it.
Bíndábáorí	बींदाबावडी	Bindá is the hole in a rock made by jumpers. Baori is a large well with steps leading down to the water.
Bíndábháṭá	बींदाभाटा	The pierced stone. Bháta is the general name for all stones.
Bíndákar	बींदाकड	A tank. The split rock.
Bíndídho kí rapat	बींदो धोकी रपट	A tank. Dah and dho both mean a pond. Rapat is an embankment usually of masonry thrown merely across the bed of a stream to retain the water. Nádí is an embankment thrown up round a field to retain the surface flow off. Taláo is the tank properly so called.
Bíráni ká chautrá	बीरानीकाचौतरा	Biráni is a bania's wife, and chautra the local form of chabutra.
Boryánáká	बोरयानाका	A tank. Boria is from the bor (ber) tree (*Zizyphus jujuba*). Náká is a corner where a hill ends; some-

		times used for a corner generally, thus the point where a gun is in a beat, would be a náká.
Borká	बोरका	A tank. Bor is the ber tree.
Borwá	बोरवा	A village.
Búḍhípáj	बूढीपाज	Búḍhi is an old woman. Páj is either a small embankment thrown over a narrow shallow stream to cross dryfoot on, or a horizontal slab resting at one end on a sloping rock and on the other on stones heaped up, used for sitting on, it has here the latter meaning.
Buṭísálar	बुटीसालर	A village. Corruption of modisálar the bare (lopped) sálar tree (*Boswellia thurifera*).

C.

Chhajjon kí ghátí	छज्जों की घाटी	A pass where the rocks project like the eaves of a house.
Cháng	चांग	A village. Founded by Chandela Gujars.
Chapeṭá	चपेटा	Chapeta (also pacheta) is the game of knuckle bones. Any place where there are big rounded stones said to be there used in the game by some deceased hero is so called.
Chaurá nímrí	चोड़ानीमड़ी	A village. The ním tree plain.
Chháplí	छापली	A village. Chhápa, a night-robber.
Chháprá	छापरा	A tank. A jál tree stands here with a curious overspreading head like a roof.
Chhátrú	छातरू	A singularly shaped rock near Cháng visible for miles; round, like the beak of a gigantic bird. Inside in olden days was a watch-tower hence the name. It is also called Náharmukh or the tiger's face.
Chhipíkurí	छिपीकुड़ी	A tank. The concealed well. There is a small well in the bed of the tank.

Chílábaṛ	चीलाबड़	A village. Chíl a kite, and bar a banian.
Chítáṛ	चीताड़	A village, founded by Chitar.
Chuklía	चुकल्या	Chuklia is a small *jhana* and hence this name is applied to a narrow peak with a rounded top as *teklia* is to a similar one with a pointed one.

D.

Dábkholá	डाबखोला	Dáb is the name of a kind of grass. Khola is a rocky ravine down which water rushes. Nala is a depression with water running through it. Nál is a valley that can be traversed by cattle. Roda is a rocky ravine.
Dadália	ददालीया	A tank. Called after a local god.
Ḍáḍelá	डाडेला	A tank. Dada is a name and is equivalent of wála.
Dádola	दादोला	A village, founded by Dádú bhil.
Dádubhílwala	दादुभीलवाला	A tank made by Dádú bhil.
Ḍákipharála	डाकीफड़ाल	Dákí is a man with an evil eye who can eat the liver out of a man's body. Pharála differs little from *phara* a slope.
Ḍanḍ	डड	A frequent name for tanks, ḍanḍá is an earthen embankment.
Ḍángphaṛa	डांगफड़ा	Dang is a range of hills, a phaṛá, a slope.
Ḍeḍiábai	डेड़ीयाबै	A tank. The place of the *baláhús* (ḍeḍí).
Deokábálá	देवकाबाला	A tank. Bála is a stream.
Dawair	दवेर	A village. Deori is a temple.
Dewáthán	देवाथान	A village and tank. The place of the god. Asthán takes the form of Thán, thán is applied as here to a temple. Asan is the village or hamlet where a jogi lives. A'ns or dhániáns (*dhyán*, reflection) is the actual place at which he lives (see Asan and A'ns pahár).

Ḍháḍhrá	डाडरा	A tank. Dhádhra is applied to a loud noise as a rushing stream and also to a stone that exfoliates—it is probably used in its first sense here.
Ḍhánchí	डांची	Dhánchi is the saddle used by potters to bring clay, high in the middle and with pockets on either side.
Dharelá	धरेला	A tank. Dharara means a loud noise and was the name of the stream.
Dahaṛiyán	दहड़ीयां	A village. Dahaṛ is a useless well.
Ḍhinga ká dhurá	डींगाकाधुरा	Dhinga is a man's name. Dhura means literally ending, hence applied to a ridge as the end of the rising, and also to a watercourse (which is slightly raised).
Dholádántá	धोलादांता	A very common name for villages. White ridge.
Dhulera	धुलेर	A tank. Dhulera is an intensive of dhola, white.
Dholiá	धोलीया	A village. White (hill). Dholi is another village similarly named but the hill is smaller.
Dholicháṭ	धोलीचाट	Numerous tanks and villages. *Dholi* is white and *cháṭ* a flat rock. *Cháṭ* is a flat rock fastened to the ground. *Sillá* is a slab not so fastened which could be lifted were power enough applied. *Kákar* is also a flat rock, but it implies the idea of slipperiness, and also that the rock is raised on the side or top of a hill.
Ḍhormagri	डोरमगरी	The cattle range. Magra and its diminutive magri is a common name for range of hills. Magra is the word usually applied to the whole of Merwara.
Dhau ká mathára	धौकामथारा	The point of the pole star. Mathára is a casual name for the point of a hill.

Dhulkot ka dántá	धुलकोट का दांता	The ridge of the earthen wall.
Dilwáḍa	दिलवाड़ा	A village and tank. Formerly Dánwara. Dán is charity, and this village was formerly given revenue free by the Maharája of Jodhpur.
Ḍombatái	डोमहताई	The dom's meeting place. Hatai is a *chaupal.*
Dukariá	दुकड़िया	A tank. Dukaria a small deep vessel.
Ḍungaṛkheṛa	डूंगरखेड़ा	A village. There are two villages of this name one called from Dungar the founder, the other from *dungar* a hill. Khera is an inhabited site.

G.

Gádichhaunrá	गादीछांवरा	A tank. Chhaunra is the *dhak* tree. Gadichaunra is the *Erethrium suberosa.*
Gámelá	गांमेला	A tank. The village one.
Gáraḍ ká dántá	गारड का दांता	Gárad is the English word guard, and on the hill a detachment of the Merwara batallion was formerly stationed.
Gauhaná	गौहना	A village and tank. Connected with *gau* a cow.
Goram	गोरम	The highest hill in the district named after a man now deified whose temple stands on the top. He was the son of Sathu, after whom the village of Sathukhera is named, and the most remarkable action of his life appears to have been his abduction of a neighbouring beauty. He carried her to the top of this hill while the pursuing father and his friends were driven back by the bees that swarm on the precipice on either side of the hill. These bees are still called Goram's bees.

Goranḍiá	गोरंडीया	A tank. Gori is soil of a reddish colour.
Gorikádah	गोरीकादह	Dah is a pool and *gori* a pretty woman.
Gaḍhálákhá	गुडालाखा	A village. Gadha is a hamlet, and in the south takes the same place that *bária* does in the north. Lakha is a man's name.
Gondiágwár	गोंदीयागवार	Gondia is a man's name. Gwár is a hamlet in the jungle where cattle are penned.
Gophárá	गोफारा	A tank. The cave shaped.
Gupháwálá	गुफावाला	A tank. The cave one.
Ghemaraṛá	घेमरड़ा	A tank. Ghemar is the place where buffaloes roll, see lewa.
Ghoṛákhaṇḍá	घोड़ाखंदा	The sculptured horse. A hill so called from its fancied resemblance.
Golmathárá	गोलमथारा	The peak of the gol tree (*Sterculia ureus*).
Goṇḍá ká bálá	गोंदा का बाला	A tank. The stream of the gonda tree (*Cordia mixa*).
Goráná	गोराना	A tank. The noisy one.

H.

Hámelá	हामेला	A tank. Hama is Shama a name. S is always pronounced H.
Harelá	हरेला	A tank. Harel is the green pigeon.
Hatáṇkheṛá	हतांखेडा	A village; originally hatái or the place of meeting.
Hatorán	हतोडां	The place of tools.
Heṭlá	हेटला	A tank. The one below.

I.

Inṭlá	ईंडया	A tank, so called as the clay of the bed dries into squares like sun-dried bricks.

J.

Jagáwálá	जगावाला	A tank. Jaga is a man's name.
Jáláwálá	जालावाला	A tank. Jála ditto.
Jáliá	जालीया	Two villages and tanks from the jál tree (*Salvadora persica*).

Jaspáláṇ	जसपालां	A hamlet. The place of profit (jas).
Jawájá	जवाजा	A tank and village. The tank was begun by Jiwa Gujar.
Jawásiá	जवास्या	A tank, from the quantity of jawása there.
Jhák	झाक	One of the old Magra villages said to be so called from *jhokái*, a robber (ján jhok karná to risk one's life).
Jhámuṛanál	झामुड़ानाल	A pass to Marwar. Jhámura is a heavy iron hammer used for breaking stones. Nál is a valley passable for cattle.
Jhámpádah	झांपादह	A tank. The pond of the waterfall.
Jhuntṛá	झुटड़ा	A village. Corruption of Chauntra a platform.
Jodhá kí holí	जोधा की होली	The place where Jodha lighted the holi fire.
Jogíberá	जोगीबेरा	The jogi's well (bera).
Jogísáthrá	जोगीसाथरा	A tank. Sathra is the grass bed on which a jogi sleeps.
Johar kheṛá	जोहरखेड़ा	A village and tank. Jor is the original name which means a grass reserve, usually called bíra; on the site of this village was a *thakur's* grass reserve.

K.

Kábrá	काबरा	A village. Spotted.
Kábrá dáṇtá	काबरादांता	The spotted ridge.
Káchhbalí	काछबली	A village. Corruption of Kachheli or where the Kachhis live.
Kachnár ká thák	कचनार का थाक	The kachnár (*Bauhinia variegata*) clearing.
Kemurwálí	केमुरवाली	A tank. Kemur is a tree (*Stephigina parviflora*).
Kákrod	काकरोद	A tank. Kakrod is land containing many stones, connected with kankar—*cf.* chiknor and chikna.
Kál	काल	A tank. Kál is famine.
Káládah	कालादह	A village. Black pool.
Káládaṛá	कालादड़ा	A village. Kálá black, daṛá a sand hillock.

Kálágumáṇ	काळागुमां	A village. Kálá a man's name. Gumáṇ proud. Referring to the story of its foundation.
Kaláliá	कलाळीया	A village, where there was formerly a still. Kalál is a distiller.
Kálánáḍá	काळानाड़ा	A tank. Kálá is a man's name and náḍá is a small embankment. Nádí is a small embankment behind which there is cultivation and náḍá is one behind which there is none (see Bindi dho kí rapat).
Kálátáṇ	काळातां	A tank. Kálár is a clan of Rawats.
Káláṭolá	काळाटोळा	A tank. Kálá black, ṭola a round rock.
Káliawás	काळीयावास	A village and tank. The village on the black (rock).
Kálidhár	काळीधार	The black ridge. Dhár is connected with dhuná (see Dhingá ka dhuná). To say Siún dhár dhár chalí hai means that the boundary follows the ridge.
Kálíkáṇkar	काळीकांकड	A village and tank. Corruption of Kálíkákar. For kákar, see Dholícháṭ.
Kálíṇjar	काळींजर	A village and tank. Accepted derivation *kalank*, defect, *jharná* to sift out. There is a very old tank embankment here, and over the village a high hill with a shrine near the top. The story connected with them is that a Ráni of Jaipur having no son visited an ascetic who lived in the hill, and through his influence got her desire. The embankment was built as a thank-offering. Rajíáwas the other village sharing in the tank is named after the same visit (see Rajíawas and Beáwar.).
Khánuwálá	खानुवाळा	A tank. The (clay) quarry. In this country clay is rarely found but in the beds of tanks.

Karántiá	करांतीया	A village. Karánt is a large saw worked by two men, here applied to a ridge.
Kátarhetlí	कातरहेतली	A tank. Below the Kátar (pass).
Kaṭílá	कटीला	A tank. Kaṭla is a slab of stone used for roofing.
Kekaríyá	केकड़ीया	A tank. With many crabs in it.
Kháḍíyá kheṛá	खाड़ीयाखेड़ा	A village. Khaḍḍa a low lying place.
Khánchábeṛí	खांचावेरी	Beri is diminutive of bera, a well, and kháncha is applied to an imperfect thing. A field would be kháncha if there were some waste land in it.
Khángadántá	खांगदांता	The serrated (khánga) danta. Khánga is applied to a serrated ridge when the teeth are uneven, and kirána when they are even.
Khárá	खारा	A tank. Salt.
Khárábálá	खारावाला	A tank. The salt stream.
Kháripáṭ	खारीपाट	A tank. The salt flood.
Khárṛá kheṛá	खारडाखेड़ा	A village. Khár 'salt.' *Ṛá* is a very frequent termination originally diminutive in sense.
Khátarláiṇ	खातरलाईं	A tank. Apparently named from the quantity of manure (khát) washed into it in the rains.
Kheḍí ká kheṛá	खेड़ी का खेड़ा	A village. Khedi a jungle tuber that is eaten, scientific name (?)
Khejaṛlá	खेजडला	A village. Khejṛa the *Prosopis spicigera.*
Kheṛá ḍaṇḍ	खेड़ाडंड	A village. Ḍaṇḍ an earthen embankment.
Khokrá	खोकरा	A tank. Khokra is old as applied to things. Dokra is old as applied to men.
Khoṛchínál	खोड़चीनाल	The valley, dangerous to traverse.
Khoṛmál	खोड़माल	A village. The plain, dangerous (to get at).
Khoṛmál ká chauṛewálá	खोड़माल का चौड़ेवाला	A tank. Chaura is a plain—for khormal see above.
Khosíá	खोसीया	Khosna is to take away, hence euphemistic for stealing. At this place a mahajan was robbed.

Kotkíráná	कोटकीराना	A village. Kot a fort and kiráná serrated. See Khangadanta.
Koṭṛí	कोटड़ी	A village. A thakur's thana or guard-house is called a kotri hence the name.
Kumṭágháṭí	कुमटाघाती	Ghatí a pass. Kumṭa is the *Acacia rupestris.*
Kunḍiá	कुंड़िया	A tank. The deep pool.

L.

Lasánía	लसानीया	Two villages and some tanks. The grindstone, literally iron sharpener.
Lálpurá dhanár	लालपुराधनार	A village. Lalpur from a man's name. Dhanár from dhan, 'wealth' which means now cattle.
Láprárodá	लापरारोदा	Either lapra 'broad' and roda 'a rocky ravine,' or possibly the first part of the compound is from the lampra grass.
Lewá kí gwár	लेवा की गवार	Gwar is a hamlet for herding cattle in the jungle and lewá is mud, earth used for plastering a wall. H. लेपना Sansk. लिप.
Lohkhán ká muthárá	लोहखान का मुथारा	The peak of the iron mine.
Loranwálá	लोरंवाला	A tank. Loran a class of Rajputs.

M.

Mákaṭ	माकट	Makat or Mangat is a high hill called after a deified man whose shrine is on the top.
Máláki nímrí	माला की नीमड़ी	Mála, ním tree.
Málnái	मालनाई	A tank in village of Naí. Mál a cultivated plain.
Mámájí	मामाजी	A tank. Mámá is the deity of threshing-floors.
Mánḍerá	मांडेडा	A village. This name, Mandlán and Mándawas are all connected with Mandara temple.
Mánelá	मानेला	A tank. Máná a man's name.

Margaṛá	मरगड़ा	The ridge commences from Magra which is applied to the whole district either as the Magra or Magra Merwara.
Máṭánwálá	माटांवाला	A tank from which potter's clay is taken, mátí is the local word for earth.
Málrádebi	मालरादेवी	Málrá is riches and at this spot some small amount of treasure was found a few years ago.
Meṛián	मेड़ियां	Two villages. Meṛí is a balcony on a house, hence applied metaphorically to a hill inhabited.
Mewásá	मेवासा	A village. Mewásí is the local form of Maveshí cattle.
Miálákhet	मयालाखेत	Possibly this might mean the field in the centre but the local explanation is that it is called after one Mesha which is pronounced Meha. It is the name of a hamlet.
Minkíáwás	मिनकीयावास	A village. Minkí a cat.
Modákákar	मोड़ाकाकर	A tank. The bare flat rock. Moda is a bold man; for kakar see Dholichat.
Moḍámúl	मोड़ामुल	For Moḍa see above. Múl is a hiding-place for shooting.
Moḍiágwár	मोड़ीया गवार	The bare hamlet.
Moḍijhángar	मोड़ीझांगर	A tank. The bare lopped tree. For Moda see above. Jhángar is a corruption of chángá which as applied to a tree, means lopped. The idea is cutting, thus the mark cut at the corner of a field at survey is a chángat.
Morangá	मोरंगा	A tank. Moranga are the tops of the feathers of the peacock which spread into a circle, hence applied to any thing beautiful (qu. morangya).
Morchámagri	मोरचामगरी	Magri is the little hill, and morcha is a defensive work.
Morvánía	मोरवान्या	A hamlet. The place of peacocks.
Moṛvániagháti	मोड़वांनीया घाटी	The twisting pass. Moṛna to twist.

N.

Náharpurá	नाहरपुरा	A village. Náhar, a tiger.
Nái	नाई	Two villages close together, one known as the small and the other as the large Nái. Originally Niáí, justice. From these villages several inhabited sites have sprung, spreading round for miles; to the villagers of the old home the disputes of the new settlers were referred, hence the honorific name.
Nauliápag	नौलीयापग	A tank. The feet of the mungoose.
Nirjalá	निरजला	A tank. The name of the date on which founded.

O.

Oráyá	ओराया	A tank. The one of loss.

P.

Pachmatá	पचमता	Pach, five; matá, conspirators. The name of a hill on which are five rocks in a position suggesting men taking counsel.
Pádábagaṛ	पाड़ाबगड़	A tank and village. The buffaloe's (pádá) cave (or waste).
Pádá ká thák	पाड़ा का थाक	The buffaloe's clearing. Thák is an opening in the jungle, it may have long grass on it.
Pádal ká thák	पाडल का थाक	The talc (pádal) clearing.
Pákhariyáwás	पाखरीयावास	A village. Corruption of Bhákarwas, from Bhákar hills.
Paláni	पलानी	A village, from palán, a camel saddle.
Pálrán	पालरां	A village. This name, and Palri another village, are connected with the word pálí a cowboy.
Pálunárapat	पालुनारपठ	A tank. For rapat, see Bindidhoki rapat. There is a local deity worshipped by swinging, hence the name páluná (pálná).
Paníháron ki ghátí	पनीहारों की घाटी	The water-carriers' pass.

Panwáríá	पंवाड़ीया	A tank. (Also one part of a certain village is so called.) Panwár is a bush of which the seeds are used in medicine (*Cassia tora ?*).
Páoṭíá	पावठीया	A tank. In the bed of it a páotí (Persian wheel worked by the feet) was formerly used.
Pátíáṇ	पाटीयां	A tank. Páṭí is the name of the wooden slate used in fields, and is now applied to long narrow fields.
Phutel	फुटेल	A tank. The one often breaking. Phutá, broken.
Piparlá kí bauṛí	पीपरलाकीबावड़ी	The pipal tree well.
Píplí	पीपली	A village. The pipal tree.
Píplíápání	पीपलीयापानी	The pipal tree water.
Putímál	पुटीमाल	A doubtful name, probably from pútí, a small bee, and mahl, a swarm. Pútí is the smallest bee as bhanwr is the largest.

R.

Ráelán kheṛá	रायेलांखेड़ा	A village. Reil is the local form of raiyat, a dependant. The servants of the Khán of Athun lived here.
Rájarlái	राजरलाई	A tank. Rájá a man's name.
Rájíáwás	राजीयावास	A village. Founded by the rájá whose ráni built the Kalinjar embankment (see Kalinjar).
Ránelá	रानेला	A tank. Rána is a man's name.
Rámsar maholá	रामसर महोला	A village. Rám is the god. Sar was originally the name of a tank in general, but is now confined to natural sheets of water. Maholá = mailán inside.
Ránáthán	रांनाथां	A village. This illustrates the genesis of names and the survival of the fittest. The village has been several times abandoned and again refounded. The last time the villagers called it Ranathan after an ancestor, thinking this would bring luck. Col. Dixon called it Bhag-

		wánpura for the same reason. This latter name appears only in official papers, the former is the local name.
Ránkhar	रांखड़	A tank. Ránkhar is an uncultivated bush waste.
Rapatsalla	रपटसल्ल,	A tank. For rapat, see Bindidhoki, rapat. Salla is a man's name.
Rátábhátá	राताभाटा	A tank. Rátá is red and bhata stone.
Roṛdah	रोड़दह	A tank. Roḍadah, the pool of the ravine. This tank is the same village as Jhampadah.
Roheṛá kheṛá	रोहेड़ा खेड़ा	A village. Roherá is the *Tecoma undulata*.
Rupáhelí	रूपाहेली	A village. Rupá a man's name and helí the local form of havelí a house.

S.

Sádarláí	सादरलाई	A tank. Sáda a man's name.
Sámbharká thák	सामभर का थाक	The Sambhar's clearing.
Sámel	सामेल	A tank. The one in front.
Sámetá	सामेटा	A tank. The collector.
Sánḍbhágá	साडभागा	A tank. Sánḍ is the name of the male of any animal, the story of this tank is that a bullock fell here and was killed.
Sánkṛabháṭá	सांकड़ाभाटा	A tank. Sánkrá is narrow, the meaning is thus the narrow pass between the stones.
Sargánw	सरगांव	A village. Formerly there was a natural lake here. See Ramsar Mahola.
Sarmálián	सरमालीयां	A village close to Sagánw. Mailau = inside.
Sireṛyán	सिरेड़यां	A village. *Sar* (Sansk. *swara*) means a voice, and this hill is so called as in troublous times a watchman was set on the hill. See also Saroṭh and Tejasání.
Sároṭh	सारोठ	A village. Sar = a voice, see Sireṛyán.
Sarúpá	सरूपा	A village in the jungle. Beautiful.

Sátpálí nál	सातपालीनाल	Pálí has several meanings. A cow-boy, a boundary of a field, a field itself, a share divided off; also a turn, or watch, in rotation as in mounting guard. The word has here the last of these meanings, and the pass which is one of the most important leading into Marwar is so called as the watch and ward was divided between seven villages. Dewari Piprelu, Kot, Basí etc.
Sawájná Chain-purá	सवाजनाचैंपुरा	A village. Sawajna is a corruption of Suhejna the *Moniya pterygosperma*. Chainpura is the village of comfort so called, as it was originally on the hill, but has now come into the plain, hence the *chain* or comfort.
Samelíá	समेलीया	A village. Two streams join here.
Semlá	सेमला	A village. From the semal tree *Bombax malabaricum*.
Sendṛá	सेंदड़ा	A village. Damp sandhills (daṛra).
Sáhpurá	साहपुरा	Two villages. Being founded by Col. Dixon, they were called Sahibpura, the present name is a corruption.
Shaíkháwás	शेखावास	A village. Corruption of Selawas. [?] Sela a man's name.
Siályá	सीयाल्या	A tank. Siála is the kharif crop as unálú is the rabi, and this tank only waters the kharif.
Sílíberí	सीलीबेरी	A village. Beri is diminutive of bera, a well. Sílí is cool. Selí is the cold wind that blows after rain in the winter months.
Sírmán	सीरमां	A village. Founded by two men in partnership.
Sírolá	सीरोला	A tank. Held in partnership by two villages.
Sírolágháṭí	सीरोलाघाटी	The pass held in partnership.
Suraj paul kí nál	सुरजपोल की नाल	Paul means a door or entrance, this is therefore the village of the gate of the sun.

Súlía kheṛá	सुलीया खेड़ा	A village. Súlí is a stake, or the pole of a gallows, and is here used for a high place.

T.

Tarká	तरका	A tank.
Ṭaṭíyá	टाटीया	A tank. Tatia is a disease allied to mange which attacks human heads, the hair falls off, and the scalp is covered with sores. Applied here in the meaning of worthless.
Teja Sání	तेजसाणी	Tejá, the watchman. A hill formerly used as a watch tower by Chang. Teja was a famous scout. See Sireṛyan and Saroth.
Tejarlai	तेजरलई	A tank. Teja a man's name.
Tíkhliá	तीखल्या	The pointed rock (see Chuklia).
Ṭelrá	टेलरा	A village. Standing on a hillock (ṭíla).
Thurián	थुरीया	A village. Thor the *Euphorbia* bush.
Thurianká ṭekrá	थुरीयां का टेकरा	The *Euphorbia* bush hillock.
Thuníthák	थुनीथाक	A village. Corruption of kohnithak. Kohni = an elbow, and thák a clearing.
Ṭibáná	टीबाना	A village. From ṭiba = rising ground.
Ṭogí	टोगी	A village. Corruption of Ṭonki from ṭonk a hillock or a hill.

U.

Ubániagháṭi	उबाणियाघाटी	Ubánía means to go bare feet. And this name refers to a thief who escaped by this pass.
Umrbáorí	उमरबावड़ी	A village. Baori is a large well with steps leading to the water. Umr is a gular tree, *Ficus glomerata*. In official records this name is spelt with an ain!
Umrkighátí	उमरकीघाटी	The pass of the gular tree.
Unḍwá	उडवा	A tank. Unḍa deep.
Usaría	उषरीया	A tank. Made in *usar* land (locally called *uhar*).

On a Collection of South Indian Coins.—*By* CAPTAIN R. H. C. TUFNELL, *Madras Staff Corps.*

(With two plates.)

The "fanams" are from my collection of South Indian coins. Regarding some of them I fear I can offer no suggestions, but have no doubt but that some of the members of the Society, better versed in the subject, will be able to throw some light on such as have not hitherto been published. I have numbered them consecutively throughout for facility of reference.

The earlier numbers are issues of Mysore and the smaller states, once independent, but now comprised within its boundaries. No. 24 is

To be substituted for pp. 157—160 of the Journal, Part I, No. 2 for 1886 as the numerical references there given do not all correspond with the numbers in the plates.

[illegible] and Shah ([illegible]) on the other in *Hindustani*, with a figure beneath which Hawkes likened to the device on the early Mahratta coins, but which I cannot help thinking is merely a perversion of the word (محمد) Muhammad.

Towering above this petty state, stands the strongly fortified Drug of Nundy, which also boasted its own coinage as represented by No. 16.

No. 15 brings us to the coinage of Mysore proper, during the period of the Muhammadan usurpation—a series, most of the coins of which are still fairly common, but as all these have been fully noticed by Hawkes in his "Coins of Mysore" they need no remark. There is, however, one exception to which I might perhaps invite attention, as I

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The earlier numbers are issues of Mysore and the smaller states, once independent, but now comprised within its boundaries. No. 24 is a specimen of the "Canteroy" fanam, by far the commonest of the series found in Mysore. This little piece of money was originally struck by Canthirava in the earlier part of the 17th century, but a re-issue was made after the fall of Seringapatam and collapse of the Muhammadan power in that state; it is, I fancy, to this re-issue that most specimens belong.

Nos. 23, 22, 21 and 20 represent the "Soobaroye" or snake series figured in Hawkes' Mysore Coins (1852) and attributed by him to the Polygars of Cuduconda. He, however, makes no mention of No. 23 of this set, nor do I know of any reference to it elsewhere. No. 21 also differs from his figure in having a five-headed and not a *three*-headed snake. During a course of some years collecting in and round the province, I have come across several specimens corresponding with the one I now send for inspection, but have never met with an issue bearing the three-headed Naga.

The Balapur coins, Nos. 19, 18 and 17 are fairly common still in the Mysore country. Struck by a Polygar of this once independent state, they differ from most of the issues of those around in having the word "Balapur" (بالاپور) on one side and Shah (شاه) on the other *in Hindustani*, with a figure beneath which Hawkes likened to the device on the early Mahratta coins, but which I cannot help thinking is merely a perversion of the word (محمد) Muhammad.

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No. 15 brings us to the coinage of Mysore proper, during the period of the Muhammadan usurpation—a series, most of the coins of which are still fairly common, but as all these have been fully noticed by Hawkes in his "Coins of Mysore" they need no remark. There is, however, one exception to which I might perhaps invite attention, as I have never come across any mention of it. I refer to No. 15, a fanam corresponding to the pagoda of Sadasiva figured in Marsden's "*Numismata Orientalia,*" and again referred to in the issue of the Society's Journal for 1883 (Fig. 13).

No. 9 represents a fanam very rare now, but occasionally met with, having on one side a dragon (which seems to me to place it with the Udayars of Mysore) and on the reverse what looks like श्री or the Nagari "sri." This little coin attracted the attention of Sir Walter Elliot, who figures it in a plate of his "Numismatic Gleanings," devoted to coins of the Sinha type (Madras Literary Society's Journal for 1858); but his only remark about it is, that it and its fellows "are gold fanams from various parts of the country," and I know of no other notice of it. Copper issues bearing a similar device I have several times met with in different parts of Mysore, but the reverses bear nothing but the cross lines so common in the early issues of these parts. At the same time one specimen I have found which bears illegible traces of an inscription apparently in Nagari on the reverse, and I cannot help thinking that should the old copper coins in the Central Museum in Madras be examined, some clue may be found to the identification of the series.

Nos. 7 and 8 carry us away to the Gajapati lords of Orissa. The pagoda of this series is one of the best known coins of Southern India. Marsden and Moore have both figured it, and it finds a place too in the XVIIth Vol. of the Asiatic Researches and in Dr. Bidie's recent article on the "Varahas"—while forged copies abound as brooches, pins, and sleeve-links. I have, however, never seen any notice of the existence of a fanam or half fanam claiming direct kinship with it. The latter, the smallest coin I have ever seen, is especially rare, and this specimen was only sold to me as a great favour (and at a somewhat exorbitant figure), by a Mysorean who had it for generations in his family. The full fanam I have only met with twice.

No. 6 bears the Sivaite bull on the obverse, and on the reverse the legend "Sri Chama Udaya" but to which of the Mysore kings of this name to assign it, I know not.

Nos. 4 and 5 are two coins regarding which, as far as I am aware, no notice has ever appeared, nor have all the enquiries I have made among natives led to any result. The former bears a figure standing before a sacred lamp on obverse and on reverse a goddess, presumably Lakshmi—seated in "padmásana," on the lotus seat. The lamp may connect it with the Setupathis of Ramnad. The obverse of No. 5 seems identical with the last, and has on the reverse what looks like a warrior holding a club.

No. 3 is a Pandyan issue bearing on the reverse the legend "Ahava Malla" (lover of war) apparently. Several Tanjore grants are said to bear this title of the Pandyan kings of probably the 10th or 12th century. The fish on the obverse also point to the Pandyan dynasty.

No. 31 may be a more recent issue of the Sub-Pandyan families. The dancing figure of "Garuda," the winged vehicle of Vishnu, is of common occurrence on the later copper coins found in the Madura district (Pandyan), usually with the fish on the reverse and occasionally *under* the figure.

With No. 2 commences a series of five coins of the Cingalese Chola dynasty, all of which have been found in the South of India, chiefly round Madura and Tirumangalam. The first of these (figured in Rhys David's article in the "Numismata Orientalia") bears the word "Iraha," a Prakrit form of the Sanscrit word "Rákshasa" (demon) above which is what may be the lotus, or possibly the conch shell of Vishnu—and it is not improbable that the Cholas of the 12th and 13th centuries were followers of that deity. The coin itself is by no means uncommon, but I have never seen a duplicate issue of its fellow, No. 1, in which the sun and moon (?) take the place of the device on the former coin, while the inscription remains the same.

No. 25 still preserves the same obverse (though in a somewhat different style to that most common on the Chola issues) but on the reverse the word "Iraka" becomes "Irako," according to the reading of a Pandit who has kindly examined the coin for me, the nominative singular taking the place of the root. Above the word is a dotted circle, probably intended for a flower, as in No. 27 we find an exactly similar circle taking the place of the lotus in the hand of the standing figure.

No. 26 presents a change in the attitude of the figure on the obverse. Instead of standing up with pendant "dupattá" the cloth here flies out, and the left leg is passed behind the right, while under the left arm appears the object which we usually find either under or grasped in the right hand. On the reverse, the word seems to be "Lakmi," the Prakrit form of the Sanscrit "Lakshmi." The circle still appears above but undotted.

No. 27 differs from all other specimens I have ever seen in having on the reverse a figure with no inscription. The squatting figure on the obverse seems to hold in his hand a dotted circle, exactly corresponding to the one previously mentioned; the form of head dress is changed, and the shape of the head is quite different to that on the generality of specimens. The same dotted circle peculiar to these coins again appears on the reverse under what looks like a tiger (the Chola symbol), and which seems to squat under the figure in much the same attitude as in what is known as the "lion" coin of Parakrama, of Ceylon.

No. 28 seems to bear on the obverse the V shaped Vishnavite symbol, with the conch and disc on either side of it, while on the reverse appears to be the "Sthali," or spouted vessel used by the Vishnavites when placing the sacred mark on their foreheads. To what place or dynasty to assign it I know not, for so many of the early Hindu royal families were of this persuasion.

No. 29. A modern issue of Travancore.

No. 30. A packet of fanams (12) of the west Coast, all of common occurrence.

No. 32. Muhammad Sháh.
No. 33. Ahmad Sháh.
No. 34. Alamgir II.
No. 35. Sháh Alam.

} Specimens of the coinage of Muhammadan conquerors after the style of the Hindu currency.

I fear that in many (if not in most) of my observations on the above I may be very far astray, for as far as I can ascertain, this class of coins has received but very little notice at the hands of numismatists hitherto, and here in Southern India we labour under the two great disadvantages of living where there is no regularly arranged public collection for comparison (though in the Madras Museum there is ample material for one), and secondly in having to deal with coins which for the most part bear no inscription whatever. . A very tyro in the subject myself, I doubt not but that some of my remarks will appear ridiculous to those deeply read in numismatic lore, but as I send specimens which in most instances I can find no reference to anywhere, and in some cases, which I can meet with no specimens of elsewhere, I feel that they may prove of interest to some of the members of the Society and therefore send them for their inspection. I may add that I have duplicates of many of those I send, and these I shall be glad to exchange for Northern India issues with any members who care to do so.

On a Collection of South Indian Coins.—*By* CAPTAIN R. H. C. TUFNELL, *Madras Staff Corps.*

(With two plates.)

The "fanams" are from my collection of South Indian coins. Regarding some of them I fear I can offer no suggestions, but have no doubt but that some of the members of the Society, better versed in the subject, will be able to throw some light on such as have not hitherto been published. I have numbered them consecutively throughout for facility of reference.

The earlier numbers are issues of Mysore and the smaller states, once independent, but now comprised within its boundaries. No. 1 is a specimen of the "Canteroy" fanam, by far the commonest of the series found in Mysore. This little piece of money was originally struck by Canthirava in the earlier part of the 17th century, but a re-issue was made after the fall of Seringapatam and collapse of the Muhammadan power in that state; it is, I fancy, to this re-issue that most specimens belong.

Nos. 2, 3, 4 and 5 represent the "Soobaroye" or snake series figured in Hawkes' Mysore Coins (1852) and attributed by him to the Polygars of Cuduconda. He, however, makes no mention of No. 2 of this set, nor do I know of any reference to it elsewhere. No. 4 also differs from his figure in having a five-headed and not a *three*-headed snake. During a course of some years collecting in and round the province, I have come across several specimens corresponding with the one I now send for inspection, but have never met with an issue bearing the three-headed Naga.

The Balapur coins, Nos. 6, 7 and 8 are fairly common still in the Mysore country. Struck by a Polygar of this once independent state, they differ from most of the issues of those around in having the word "Balapur" (بالاپور) on one side and Shah (شاه) on the other *in Hindustani*, with a figure beneath which Hawkes likened to the device on the early Mahratta coins, but which I cannot help thinking is merely a perversion of the word (محمد) Muhammad.

Towering above this petty state, stands the strongly fortified Drug of Nundy, which also boasted its own coinage as represented by No. 9.

No. 10 brings us to the coinage of Mysore proper, during the period of the Muhammadan usurpation—a series, most of the coins of which are still fairly common, but as all these have been fully noticed by Hawkes in his "Coins of Mysore" they need no remark. There is, however, one exception to which I might perhaps invite attention, as I have never come across any mention of it. I refer to No. 15, a fanam corresponding to the pagoda of Sadasiva figured in Marsden's "*Numismata Orientalia*," and again referred to in the issue of the Society's Journal for 1883 (Fig. 13).

No. 16 represents a fanam very rare now, but occasionally met with, having on one side a dragon (which seems to me to place it with the Udayars of Mysore) and on the reverse what looks like श्री or the Nagari "sri." This little coin attracted the attention of Sir Walter Elliot, who figures it in a plate of his "Numismatic Gleanings," devoted to coins of the Sinha type (Madras Literary Society's Journal for 1858); but his only remark about it is, that it and its fellows "are gold fanams from various parts of the country," and I know of no other notice of it. Copper issues bearing a similar device I have several times met with in different parts of Mysore, but the reverses bear nothing but the cross lines so common in the early issues of these parts. At the same time one specimen I have found which bears illegible traces of an inscription apparently in Nagari on the reverse, and I cannot help thinking that should the old copper coins in the Central Museum in Madras be examined, some clue may be found to the identification of the series.

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No. 22 is a Pandyan issue bearing on the reverse the legend "Ahava Malla" (lover of war) apparently. Several Tanjore grants are said to bear this title of the Pandyan kings of probably the 10th or 12th century. The fish on the obverse also point to the Pandyan dynasty.

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No. 25 still preserves the same obverse (though in a somewhat different style to that most common on the Chola issues) but on the reverse the word "Iraka" becomes "Irako, according to the reading of a Pandit who has kindly examined the coin for me, the nominative singular taking the place of the root. Above the word is a dotted circle, probably intended for a flower, as in No. 27 we find an exactly similar circle taking the place of the lotus in the hand of the standing figure.

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No. 29. A modern issue of Travancore.

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No. 32.	Muhammad Sháh.	Specimens of the coinage of Muhammadan conquerors after the style of the Hindu currency.
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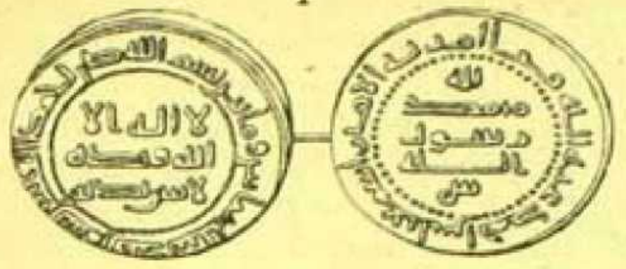
PLATE III.

I



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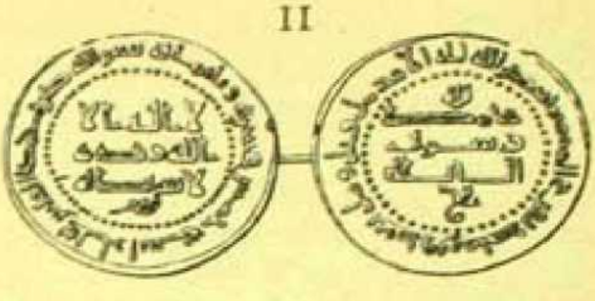

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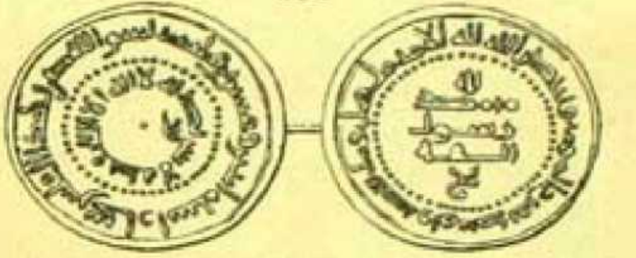

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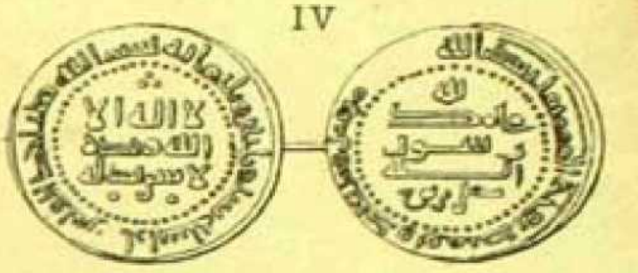

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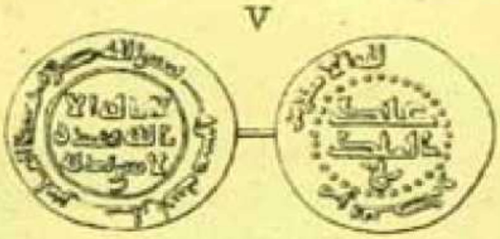

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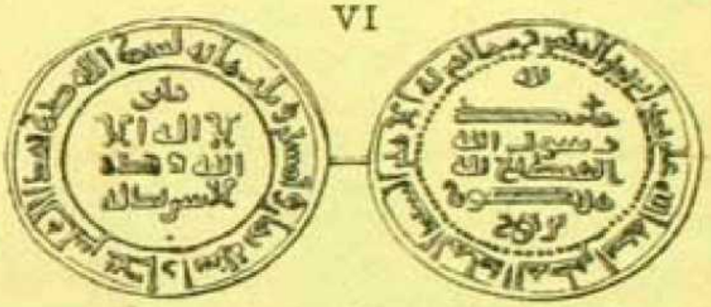

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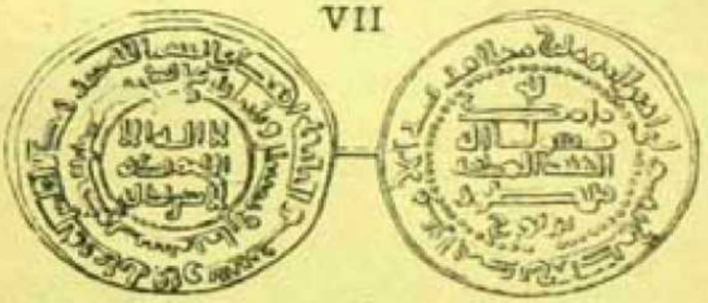

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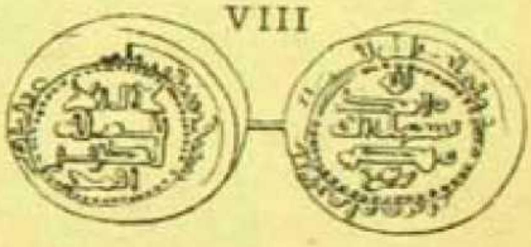

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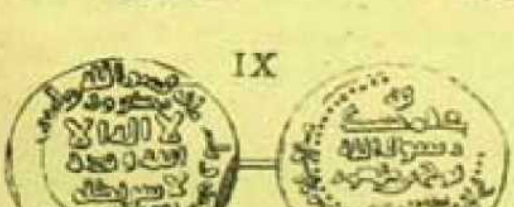

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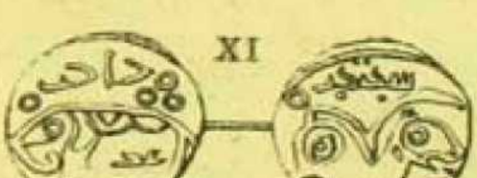

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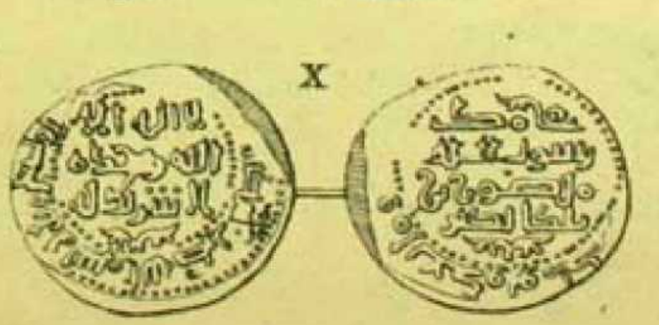

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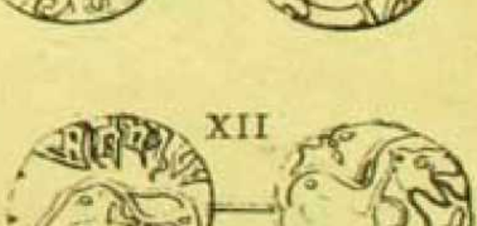
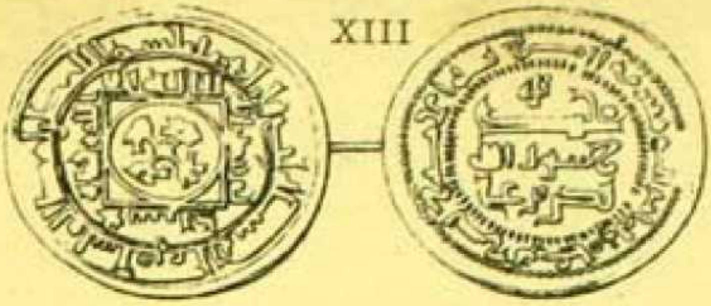


PHOTOZINCOGRAPHED AT THE SURVEY OF INDIA OFFICES, CALCUTTA. MAY 1886.

XIII



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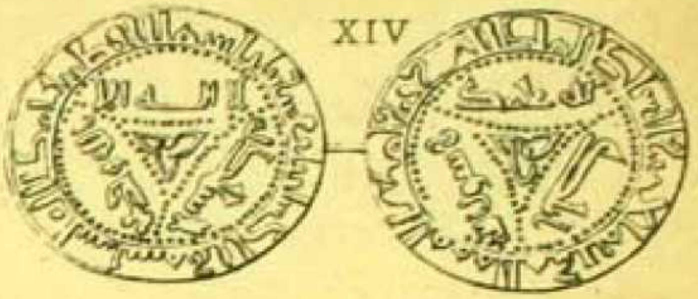

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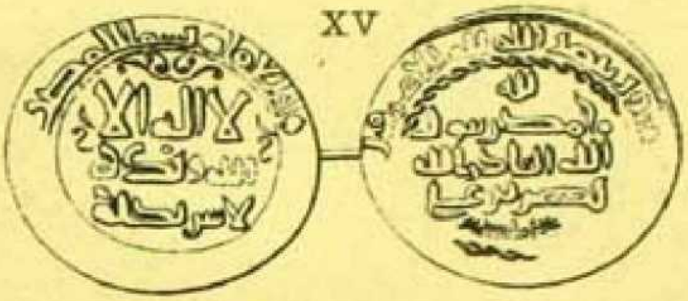

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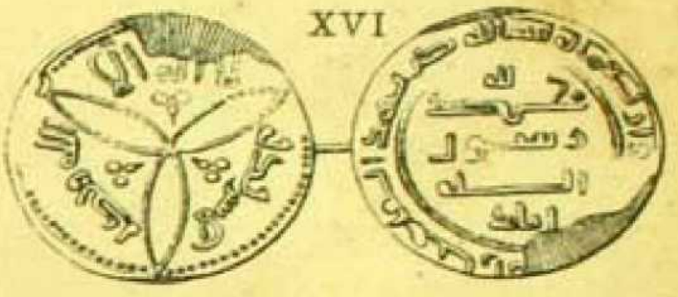

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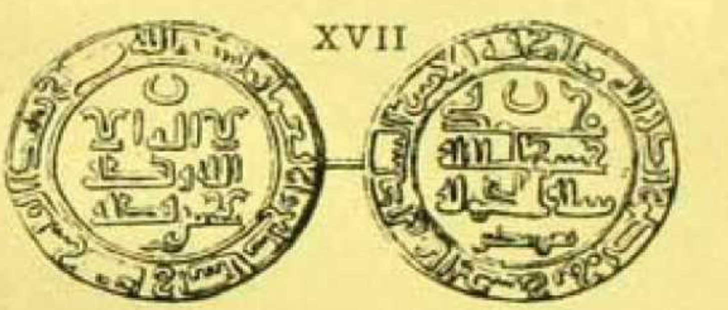

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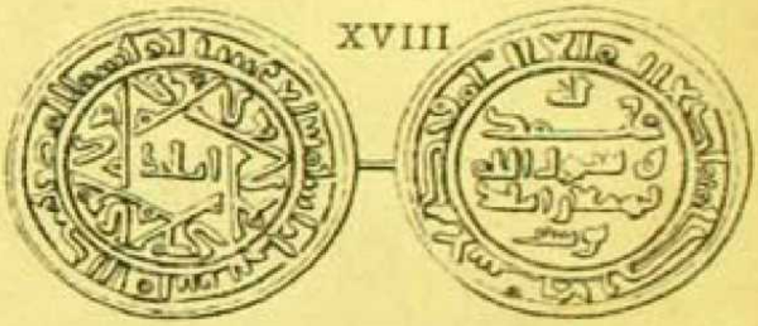

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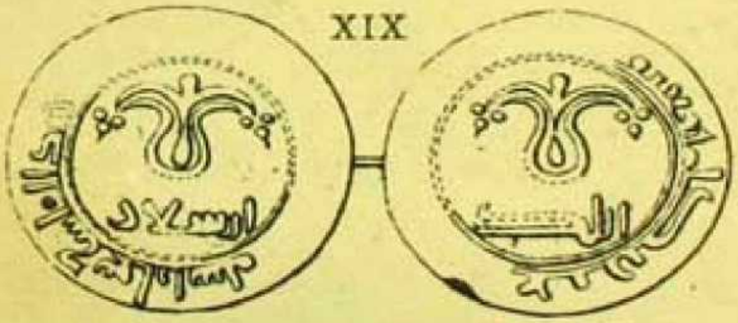

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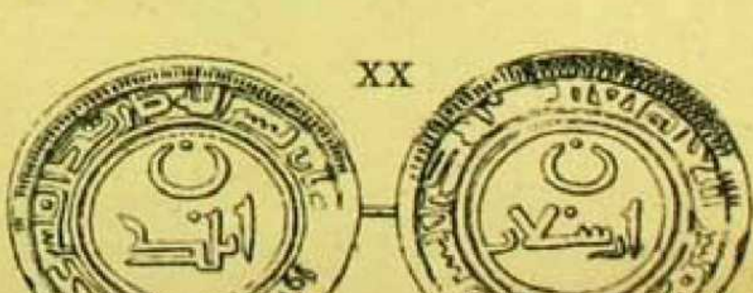

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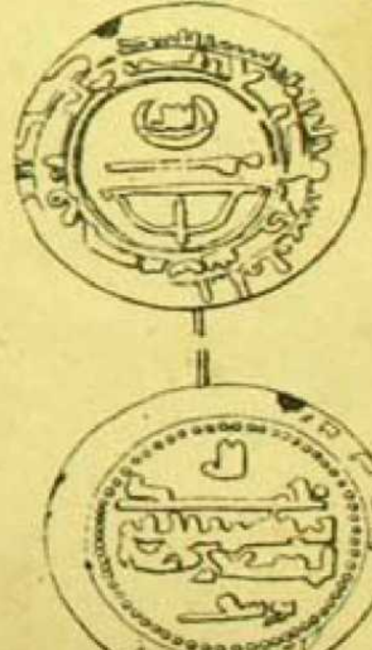

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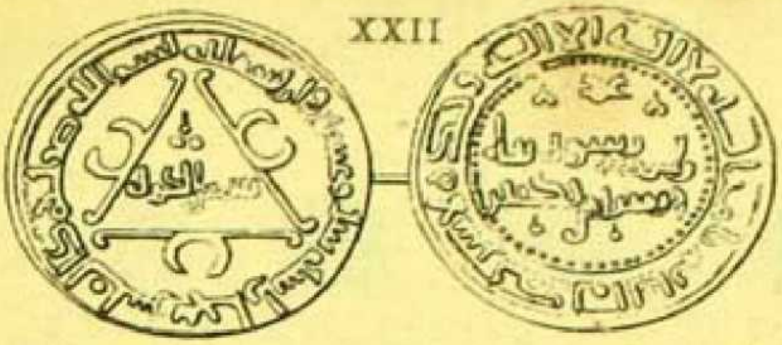
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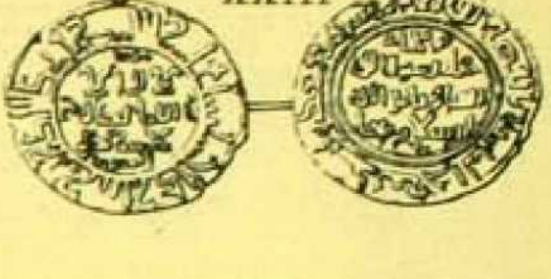
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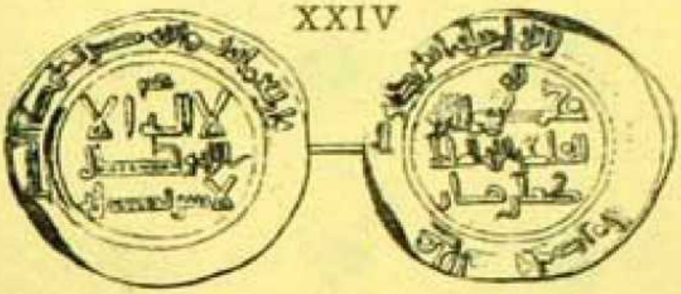
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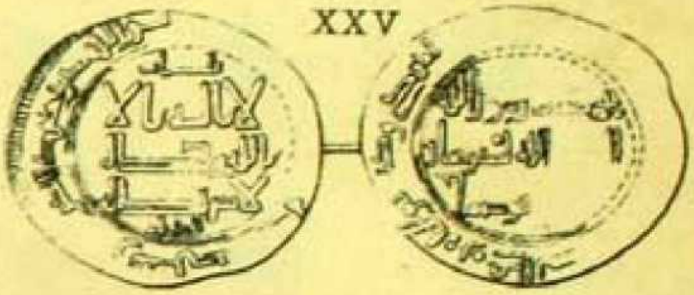
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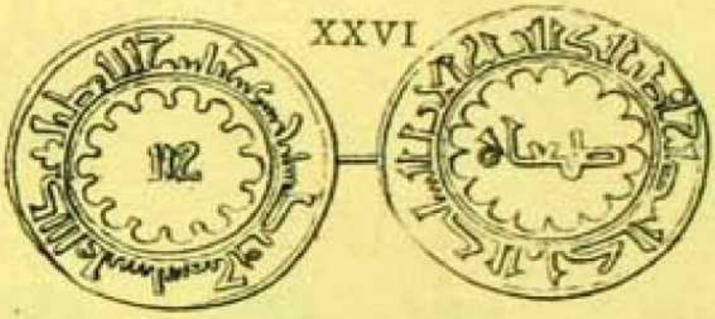
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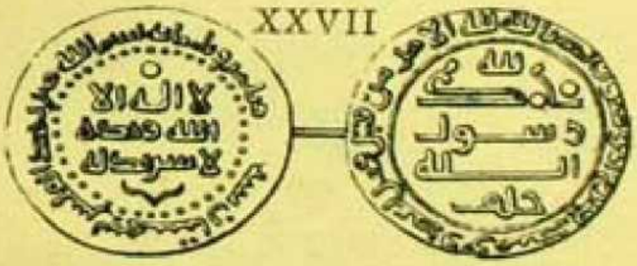
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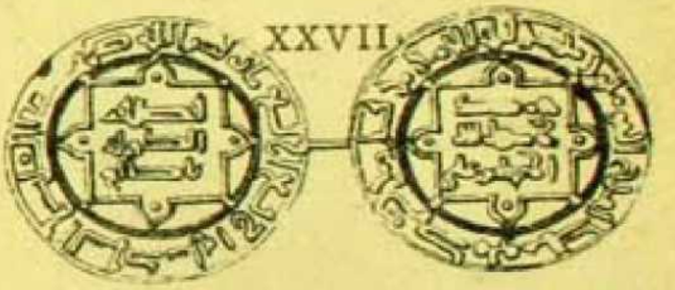
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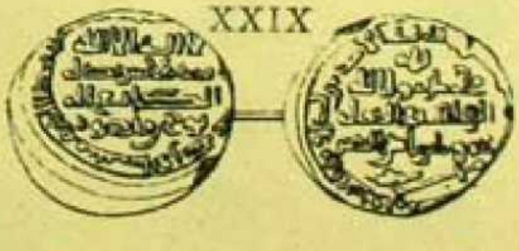
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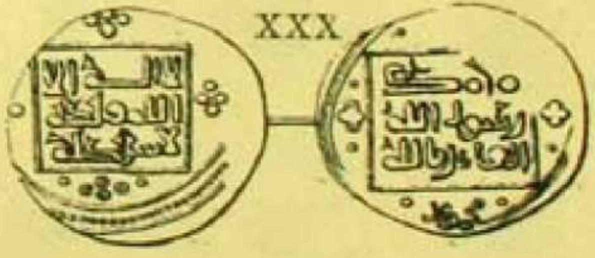
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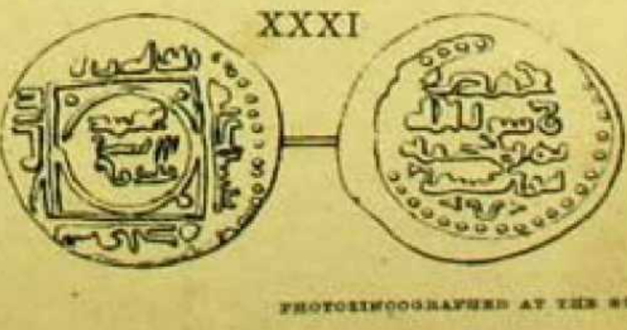
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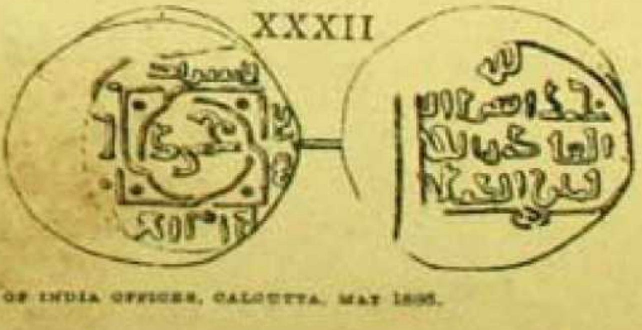
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Journ., As. Soc. Bengal, Vol. LV, Pt. I, for 1886.

PLATE VI.

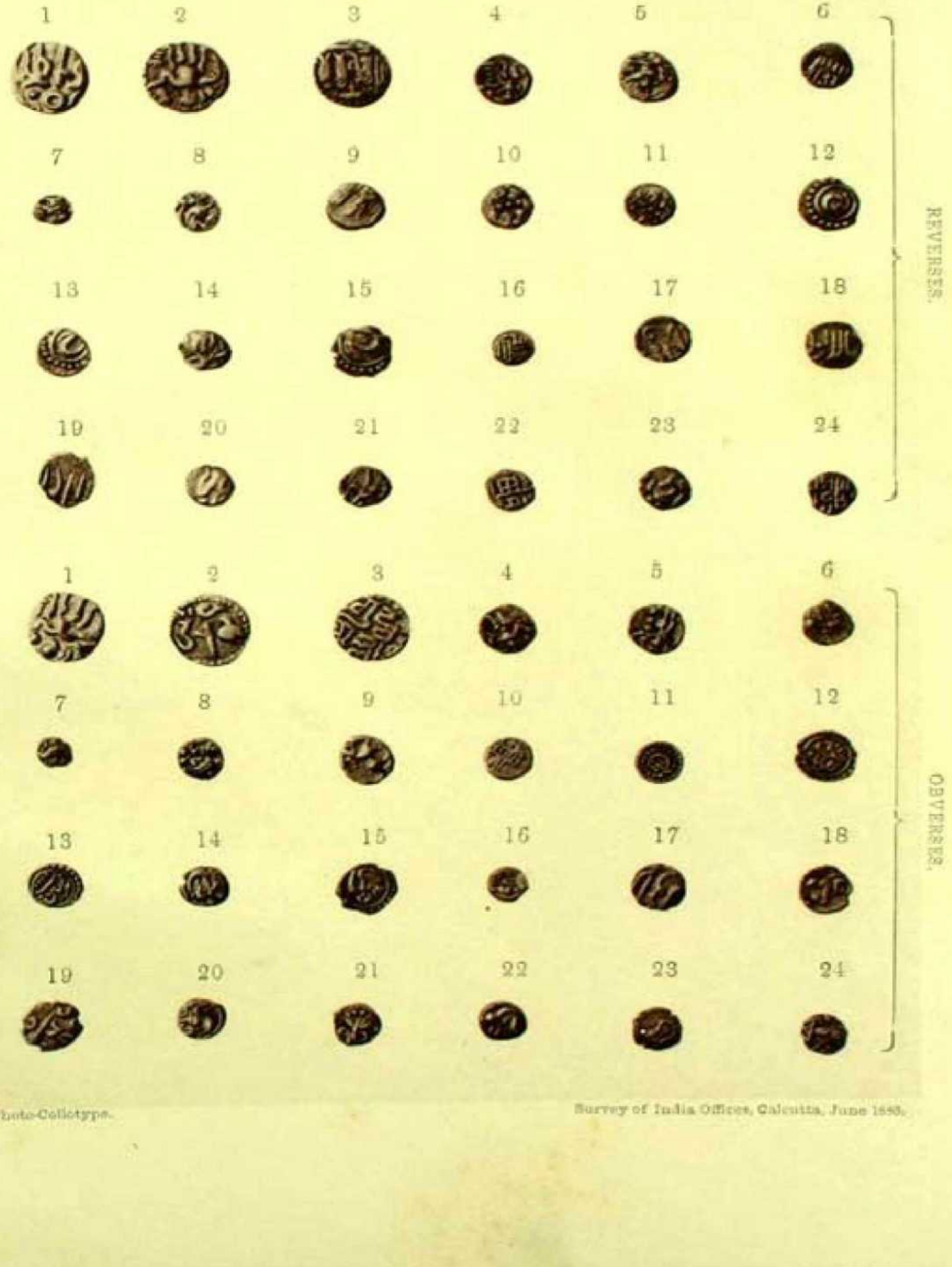

Photo-Collotype.

Survey of India Offices, Calcutta, June 1886.

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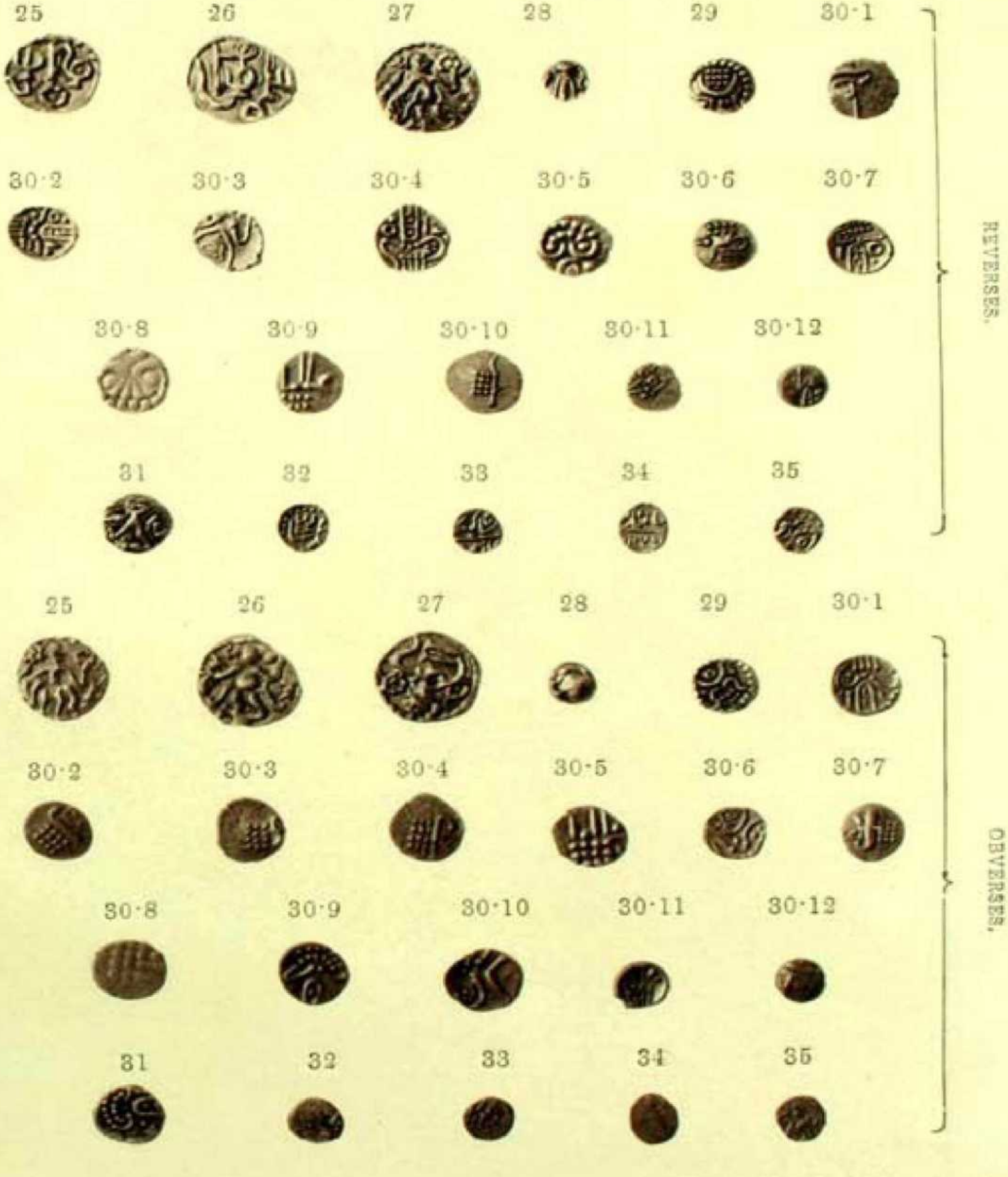
PLATE VII.



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Note on Some of the Symbols on the Coins of Kunanda.—By W. Theobald, Esq., M. R. A. S.

The coins of this king are so well known and have been so well delineated and so fully described, that it may excite surprise that any new light should be sought to be thrown on the symbols they bear, without recourse to any essentially nearer or different material than those which have already undergone the scrutiny of some of our ablest orientalists; and I feel that a sort of apology may well be expected for my presumption in claiming to see deeper into the subject than others have done, who are far abler than myself in this particular branch of enquiry, and that my justification can alone be found, by establishing with a fair amount of probability the substantial correctness of the views which have suggested themselves to me, after the perusal of the papers of some of my eminent predecessors in this enquiry. For my present purpose it will, I think, suffice to quote from the writings of Prof. H. H. Wilson in his 'Ariana Antiqua,' p. 415, Pl. XV, f. 23; a paper by E. Thomas, Esq., in J. R. A. S. Vol. I, New Series, p. 447; a paper by my learned and esteemed friend Bábu Rájendralála Mitra in J. A. S. B. 1875, Part I, p. 82, and Prinsep's Pl. XXXII, J. A. S. B. 1838.

The type of both the silver and copper coins of Kunanda is very constant, so far as the general design goes, though the copper coins vary considerably in size, weight, and execution, while the dies of the more carefully executed silver coins present minor variations, which do not, however, impair the marked uniformity of type pervading them all.

Professor Wilson thus describes the silver coin figured by him in 'Ariana Antiqua,' Pl. XV, f. 23. "Round. Stag, to the right with female figure in front; above the back of the animal a symbol, Mon. No. 164*d*, and between its horns another (?) No. 164*b* * * * * * * *Rev.* A chaitya surmounted by an umbrella, and Mon. No. 156; on its right a square Mon. No. 165 surmounted by a triple tree; on its left two symbols, No. 166 and the sign familiar to the Hindus by the name of Swastika. See No. 158" l. c. p. 415.

On the preceding page, Professor Wilson remarks: "The principal object is a female figure, in front of a stag, the meaning of which does not derive much light from the passage quoted by Mr. Csoma from the Dul-va that 'a man of the religious order may have on his seal or stamp a circle with two deer on the opposite sides, and below, the name of the founder of the Vihara or monastery." Wilson's coin I will designate as *a*.

Mr. E. Thomas (l. c.) thus describes his coin, which may be called *b*.

"The central figure represents the conventional form of the sacred deer of the Buddhist. (1) The horns are fancifully curved, and the tail is imitated from that of the Himalayan *yak;* an appendage, which, in its material use and pictorial embodiment, was so early accepted as a distinctive type of royalty. In attendance on this symbolic animal is a lightly draped female (2) who holds aloft a lotus (3). The monogram ⍑ (4) complete the emblems on the field, but the lotus is repeated at the commencement of the legend."

The emblems on the reverse are thus described; (p. 476) "The central device consists of a *stupa* (5) surmounted by a small chhatra (6), above which appears a favourite Buddhist symbol (7). At the foot is a serpent (8). In the field are the Bodhi tree (9), the Swastika cross (10), and an emblem peculiar to the Buddhists (11)."

The coin itself is figured on p. 457. In a note on p. 475, Mr. Thomas adds, "On some coins* the lotus is inserted in the field below the body of the stag. On other specimens the letter △ = *V* (*Vihára?*) occupies the vacant space." The third coin, *c*, figured by Bábu Rájendralála Mitra (J. A. S. B. 1875, Part I, p. 89) does not materially differ as regards the emblems engraved on it, from specimen *b*, and need not therefore be more particularly described here. The fourth specimen in silver, *d*, is a coin in my own possession, which differs in the animal on the obverse, standing in full side profile, so as to display one horn only; in the female holding some obscure object, which it is hardly pos-

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* J. A. S. B. Pl. XXXII. f. 4.—W. T.

sible to regard as a lotus, but which may be intended for a *chowri* or fly-whisk, and in the presence beneath the animal's belly of a small chaitya, made of three segments of circles.

The three symbols which it is proposed to consider, are—1st: The animal forming the central figure on the obverse of these coins. 2nd, the symbol or emblem over the animal's head; and 3rd, the object or symbol on the reverse, standing to the left of the chaitya, numbered 11 by Thomas, but the nature of which he professes his inability to explain.

As regards the animal which writers have agreed to term a 'deer,' the question which first arises is, whether the same animal is in every case intended, or if two animals have not been confounded under one designation? The rude execution and style of many of these coins, particularly the upper ones, has, I think, contributed to a laxity of interpretation, resulting on a fundamental misconception of the animal which generally appears on the coins, as from the careful consideration of the four above-mentioned silver coins, it may be gravely doubted if a 'deer' is the animal intended to be represented on any of them! In coarsely executed coins of small size, like these of Kunanda, no absolute decision can perhaps be arrived at on the evidence of a single specimen, but in coins of fairly good execution, as for example, specimen *b*, on which Mr. Thomas recognises (correctly in my opinion) the tail of the animal, as the tail of the Himalayan yak (*Poephagus grunniens*) something beyond mere assertion is called for, before we can admit the theory that the artist intended to represent a 'deer,' with the tail superadded of an animal belonging to an entirely different section of ruminants.

The well known canon of Horace should serve to warn us against adopting such a supposition, unless there is strong evidence to warrant our so doing.

> "Pictoribus atque poetis
> Quidlibet audendi semper fuit æqua potestas.
> Scimus, et hanc veniam petimusque damusque vicissim:
> Sed non ut placidis coëant immitia, non ut
> Serpentes avibus geminentur, tigribus agni." Ad Pisones.

> "Poets and painters (sure you know the plea)
> Have always been allowed their fancy free.'
> I own it; 'tis a fair excuse to plead;
> By turns we claim it, and by turns concede;
> But 'twill not screen the unnatural and absurd,
> Unions of lamb with tiger, snake with bird." Conington's translation.

The horns or antlers of deer are branched and deciduous, and capable of being periodically shed and renewed; the horns of other ruminants are unbranched, persistent and supported by bony cores, as in the oxen and antelopes, and these appendages are so characteristic of the animal, that to represent an ox with the curved and knotted horns on its head of an Ibex or the antlers of a *bara-singha* or stag, would be as monstrous as the figure presented by 'Bottom,' disguised with an ass's head, or the unnatural productions of heraldic imagery. Now on a coin, it were more easy to represent with effect, a branched horn or antler, such as characterise a 'deer,' than a simple unbranched one, such as is invariably borne by a bovine ruminant; but on none of the above four coins, all perhaps above the average of execution, nor indeed on the majority of the coins in question, in either silver or copper, is there any indication of an attempt to represent the animal with a branched horn, or the antler of a deer, and hence I think we may fairly hesitate to believe that a 'deer' was the animal intended.

In the best executed specimens the tail is 'bushy' and drawn with sufficient character, to fully warrant Mr. Thomas in describing it, as the tail of a yak. What induced Mr. Thomas to consider this yak's tail, as grafted on to the body of a 'deer' it is needless to enquire, but the question for us to consider is, if the animal is not rather a *yak* than a *deer?*

Professor Wilson in his description of the coin figured in Ariana Antiqua gives a clue to the correct determination of this point, and differs from Mr. Thomas in describing a symbol (No. 164*b* a. a. Pl. XXII) as occurring over the head of the animal. This 'symbol' (as Professor Wilson correctly regards it) Mr. Thomas evidently regarded as constituting part of the horns, which he consequently described as "fancifully curved," and in this he is followed (though inferentially only and without special comment or allusion) by Bábu Rájendralála Mitra; but the distinctness of the figure of Wilson's coin *a* fully supports the view that the object or symbol in question has no connection with the horns of the animal, however much that may seem to be the case in less carefully executed or less well preserved coins.

In the coin *d* in my own possession the complete isolation of the symbol in question from the horns of the animal is as clearly marked as in Wilson's specimen, and is rendered more striking and obvious by the somewhat different 'pose' of the animal, which offering a side profile, displays but a single horn, whereas Wilson's figure exhibits both.

With equal clearness is the distinct separation between the symbol and the horns of the animal represented on Prinsep's Plate XXXII, J. A. S. B. 1838, figs. 4 and 5, where the artist's intention to depict two cobras facing each other can hardly be questioned. These coins are of silver, but on the same Plate a copper coin fig. 8 supports the same conclusion. It may also be added that on two copper coins on the Plate figs. 9 and 10 the symbol appears to be wholly absent.

In every coin but one, which has come under my notice, in either silver or copper, the horns are unbranched, or of the *bovine*, as contrasted with the *cervine* type, and in the exceptionally fine specimen *a*, would appear as though slightly twisted, precisely as the horns of the *yak* actually are. Generally, however, the horns are represented as simply curved, but for this, there is a sufficient reason, in the extreme difficulty of representing in metal, such horns in any other way; there was therefore every inducement to the artist to represent a branched horn of a 'deer' as most effectively and in the most artistic manner indicating that animal, had such been his design. On the evidence then of coins *a* and *d* it may be assumed as established, that the horns of the animal represented on the majority of these coins, are not "fancifully curved" (through their accidentally coalescing with the symbol above them) but possess the simple curvature of a yak's horn, and as the peculiar bushy tail of that animal is represented as well, with no mean pictorial fidelity, the conclusion is irresistible that the Himalayn yak, and no species of 'deer,' is the animal usually intended.

One coin has, however, fallen under my notice, the first upper coin of this series in the British Museum collection, which undoubtedly represents an animal with branched horns, and I see therefore no escape from the conclusion that on this particular coin a *deer* and not a *yak* is really intended. Perhaps other collections may contain similar coins, but it is the only one I have myself hitherto seen. On this coin also (whether as some might suppose fortuitously, or as I am inclined to believe, by intention) the tail of the animal is long and lank, and not bushy like a yak's; and the very fact of the tail being represented rather long, though a deer's tail is short, appears to me not improbably to have been an intentional deviation from nature on the artist's part, the more forcibly to proclaim by the palpable contrast between a lank tail and the ordinary bushy one, the substitution of a stag in place of the more generally accepted yak. This it may, perhaps, be urged is too refined a speculation, as on the coarser and less carefully executed copper coins of the usual type, the bushy character of the tail is not invariably maintained; but in the case of this coin (though it be of copper) where the artist has introduced the crucial detail, as I may call it, of a branched horn, the style of tail represented, more probably results from design, and is correlated to the alteration in other particulars, than from imperfect or careless execution.

It now remains only to add a few words on the objects or symbols depicted over the yak's head. In Wilson's coin *a* it is clear that whatever they are, they are separated from, and have no relation to, the horns of the animal, and the same remark applies to the coin *d* in my own possession. They are in fact two rather stumpy or conventional figures of snakes, presumably the Indian Cobra (*Naga tripudians*), and this is so apparent as to cause surprise that Professor Wilson should have contented himself with including them in his Plate of symbols (No. 164*b*) without hazarding any opinion as to their true significance. On the copper coins of rude execution, these objects are often degraded into two straight-backed *sigma*-shaped objects quite unconnected with the horns, whilst in such coins as those figured by Mr. Thomas (*b*) and by Bábu Rájendralála Mitra (*c*) of superior execution, the lengthened and more serpentine form given them, causes the tail cut to approximate sufficiently close to the termination of the horns of the animal, to give rise to the mistaken idea that they are really prolongations of them.

The appropriateness of a pair of cobras among a collection of Buddhist symbols is unquestionable, and on this the remarks of Mr. Thomas which relate to the single snake below the chaitya on the reverse of these coins may here be quoted. "(8) The craft of serpent-charming in the East, probably from the very beginning, contributed a powerful adjunct towards securing the attention and exciting the astonishment of the vulgar, whether used as an accessory to the unpretentious contents of the juggler's wallet, or the more advanced mechanical appliances* of professors of magic—who among so many ancient nations progressively advanced the functions of their order from ocular deceptions to the delusion of men's minds and the framing of religions of which they constituted themselves the priests. India, which so early achieved a civilization purely its own, would appear, in the multitude of the living specimens of the reptile its soil encouraged, to have simultaneously affected the mass of its population with the instinctive dread and terror of the scriptural enemy of mankind—a fear which, in the savage stage, led to a sacrificial worship similar to that accorded to less perceptible evil spirits. Hence the dominance of the belief in Nagas, which came to be a household and state tradition, and which especially retained its preeminence in the more local Buddhist faith" (l. c. p. 484).

In representing two snakes facing one another, we have an indication, (apart from their tripudiant attitude) that the cobra was intended, as these reptiles are popularly supposed, and with some justice I believe, to associate in pairs, so much so that it is commonly believed that if one is killed it will not be long before its companion will be found near the same place. Whether this is a trait with poisonous snakes only, I do not know, but in corroboration thereof in their case I can relate an instance within my own personal knowledge. Many years ago I had a terrier dog bitten in a dry ditch in Calcutta, by a Chandra borá, (*Daboia Russelli*, Shaw). The dog died in a very short time, and I then and there killed its assailant, a powerful animal of some five feet in length. The very next day, as I was walking in slippers over the same spot, I narrowly escaped putting my foot down on, and being bitten by a very similar snake, which I naturally concluded to be the partner of the one killed the day previously. The appearance, however, of two hooded snakes or Cobras on coins is too common to call for further comment, but it may be asked how comes this serpent symbol to be repeated on the reverse. To this the answer is clear. The solitary serpent, depicted as a single undulating line below the chaitya represents not the cobra, but another type of reptile altogether, the Asiatic Python. It is of course needless to remind the reader that two distinct ideas are embodied in the symbol of the serpent (considered apart from the local Indian Naga) viz., that, with which we are most familiar, of the serpent as the embodiment of evil, the Vedic 'Ahis' and 'Vritra,' the dreaded throttling snake of primeval mythology; and the serpent in its beneficent aspect and the symbol of life-giving and healing power. It is of course in this latter aspect that the serpent appears beneath the 'chaitya,' and on one copper coin in my possession, the serpent is depicted, not extended at length below the chaitya, but as entering into it from below, so that regarding the 'chaitya' as a leaf, the serpent is indicated as occupying the position of its stalk, that is, as partly parallel with its base, but curved up and united to it, in the middle. The idea in this instance is (I would suggest) that the sacred 'chaitya' has been selected as its abode by the sacred and symbolic animal, as the sacred serpents of other lands were popularly held to do, in some shrine or temple of Pallas, Phoibos or Æsculapius. This copper coin exhibiting the union of the snake and 'chaitya' is in rather poor condition and weighs 34 grains, but does not display any other deviation from the ordinary type of these coins.

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* The learned writer may not improbably when penning these words have had the line of Juvenal in his mind.

"Et movisse caput visa est argentea serpens." Satire VI, line 338.

"The silver snake
Abhorrent of the deed was seen to quake." Gifford's translation.

The third symbol on these coins to be now noticed is that numbered 11 by Mr. Thomas and regarding which he thus expresses himself (l. c. page 487).

"(11) I am unable to conjecture the intent or import of the singular emblem which appears below the Swastika. An earlier form of the device occurs on the introductory weight currency * * * but this outline suggests no more intelligible solution of its real import than the more advanced linear configuration. The design may possibly have emanated from some fortuitous combination of mystic signs of local origin, so many of which passed imperceptibly into the symbolization of Buddhism. General Cunningham states that this device, in its modified form as seen on Kunanda's coins, is found on the necklace of Buddhist symbols on one of the Sanchi gateways."

I would here enter, *en passant*, a protest against the idea of any "fortuitous combination" being responsible for the origin of religious symbols of any sort; indeed the terms 'mystic' and 'fortuitous' appear to be mutually incompatible. The reason why hair grows on some parts of our body and not on others, may be unknown to us, but it is certainly not fortuitous. The removal of the hair from a part of the body, in the tonsure of the priest, is also not fortuitous, but mystical in the highest degree; and we should certainly err in supposing the 'tonsure' a fortuitous and meaningless custom, because its origin being thoroughly pagan, and rooted in an impure soil (as we who have lost all sympathy with and almost the power of appreciating justly the old nature worship, would term it) is probably unknown and its import unsuspected by the majority of those individuals in modern Christendom who submit to the rite, and thereby masquerade in the cerements of a religion, their very souls would recoil from. The fact that the meaning of a rite or symbol is unknown or but little dwelt on may be used as an argument for suspecting that its origin, like that of many a noble house, is of such a character as to be dishonestly kept in the back ground, but not that it is in any way fortuitous, and still less that it is at once fortuitous and mystical likewise.

Whether the archaic symbol referred to by Mr. Thomas as occurring on the weight currency was of identical import with the symbol on the coins of Kunanda need not here be discussed, as the authority of Mr. Thomas is, I consider, sufficient to settle the question affirmatively; but as regards the symbol on the coins, a very simple and appropriate explanation presents itself to any one familiar with Buddhist manners at the present day in a Buddhist country, like Burma for instance. Viewed then by the light of modern Buddhist usage, the symbol in question resolves itself into an altar or receptacle wherein food is exposed for the benefit of animals, in the neighbourhood of a monastery or pagoda. In Burma, food may often be seen thus exposed, often lavishly, for the use of any passing animal, generally on the ground or on some low and easily accessible spot, but sometimes on a raised platform or altar constructed for the purpose. For the use of birds, a pious Buddhist would naturally provide a raised support, much of the character of the symbol in question on the coins, so that the birds, when feeding, might be safe from the attack of any beast of prey in ambush near them, and such an altar for the reception of food, is in strict accord with the other symbols with which it is associated. To those who have not seen the symbol, it may be roughly described as resembling a flower-pot elevated on a pole, but whether the intention is to represent a partially hollow receptacle or not, is neither very clear nor very material.

The archaic form of the symbol supports, or, at all events, does not militate against the explanation now offered. It consists of an upright ⊤ supporting a cup-shaped vessel, not improbably representing the begging bowl of a Buddhist monk.

On one side of this vessel are two appendages forming a < the precise character of which is certainly far from clear. It is just possible, if the object is intended for a begging bowl, that the appendage in question may represent conventionally the carp or ends of a band, used to sustain it, whilst collections are being made : but this suggestion I make tentatively and with much hesitation.

These remarks I offer for what they are worth, leaving it to those with more extensive knowledge of the subject than myself, or whose acquaintance with these coins is larger than my own, to decide what weight fairly attaches to them.

Bedford, May 11*th*, 1886.

The Miná tribe of Jájpur, in Meywar.—By Kavi Ráj Shyámal Dáss, M. R. A. S., F. R. Historical Society. Translated by Babu Ram Prasad.

The Minás are said to be a mixed race : descended from unions between high caste fathers and low caste mothers, and are divided into three hundred and forty clans.

Of these only seventeen are of importance, the remainder being represented only by a few families. They are found all over Rájputáná, but principally in Meywar, Jeypore, Bundi, and Kotá.

The seventeen clans are as follows :

(1.) Tází ताजी derived from a Rájput father.
(2.) Pawṛí पवडी from a Bráhman father and Miná mother.
(3.) Mor Jálá मोरजाला.
(4.) Chítá चीता.
(5.) Húnbáj हूणबाज Rájput father and Miná mother.
(6.) Baraḍ बरड derived from a Mahájan.

(7.) Belang बेलग.
(8.) Kábrá काबरा.
(9.) Dágal डागल from a Rájput father.
(10.) Ghartud घरटुद from a Rájput father.
(11.) Bhúrwo भूडवो.
(12.) Kirwá कीडवा.
(13.) Dhodhing धोधींग of a Chowhán father.
(14.) Bhíl भील born of a Bhíl mother.
(15.) Boya बोया.
(16.) Mothís मोठीस from a Pramár or Puár Rájput.
(17.) Parihár परिहाड (पडयार) from a Rájput father.

Of the above only the Mothís and Parihár are found in the Jájpur* district in any considerable number, and the following account relates principally to these two clans.†

The Jájpur Minás number altogether two thousand five hundred families, composing, in round numbers, eleven thousand five hundred souls.‡

MOTHÍS MINÁ.§

The Mothís family of Minás is said to have been founded about three centuries before the age of Vikramáditya by a Rajput of the Pramar clan, of which Vikram was the pride and ornament.

Rohi‖ Dás, a descendant of Rájá Barna Rishi, son to Rájá Dhúmra (to whose family also belonged Chitraug Mori and Bhartrihári), was one day engaged in contemplation on Mount Abu, when a Banjárá female who had strayed from her caravan of bullocks chanced to pass by him. Rohi Dás was struck with her beauty, and wooed her. She in due course gave birth to two sons, Hariá and Sariá, in a field of lentils, (Moth), whence they came to be called Mothís; and in consequence of having been born of a low caste mother, they were ranked low.

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* Yajnapúra 'city of sacrifice' is the original Sanskrit name: although in the word यज्ञ the *jn* regularly becomes *g* in Hindi याग or जाग; yet in the name of the town it becomes ज्ञ giving Jájpur, which again outsiders have modified into Jaháj pur. See my Comp. Gram. Vol. I., p. 302.—ED.

† The writer is indebted to the Hákim (Mehtá Lachhmi Lál Ji) of the district for much assistance in the enquiry regarding the Minás, and also to Bhawáná Miná a Subahdár in the Sajjan Paltan.

‡ The total number of Minás in Rajputána is fixed by Kitts at 42,7672. Compendium of Castes and Tribes, p. 13.

§ This narrative has been taken from the MSS. of the Jágás and Dholis, and from oral accounts delivered by old men.

‖ His younger brother succeeded to the throne of Dhár in Málwá.

The Moṭhís Minás are not allowed to step on the carpets of Hindus because of their having practised cow-slaughter at some period.

The genealogy of the Moṭhis Minás is as follows :

(1.) Rohi Dás रोही दास..
(2.) Hariá and Sariá हरिया, सरिया.
(3.) Reṇ रेण.
(4.) Chuṇḍár चुंडार.
(5.) Kous कोउस,
(6.) Káti Ráe काती राय.
(7.) Budká बुडका.
(8.) Bálrá बाल्हरा.
(9.) Khetrám Pásá खेतराम पासा.

(10.) *Sátúji सातूजी.
(11.) Haṭak हटक.

(The hero of his race, who distinguished himself as a warrior in the fight against Baghráwuts.† He is worshipped by the Moṭhis Minás, as a hero-god.)

(10.) Dípsá दीपसा.
(11.) Dewul देवल
(12.) Udási उदासी came to the Todá Solankhi Chief of Bháṇylá भांयला (the modern town of Nayánagar), between S. 1404 and 1488.
(13.) Bísal बीसल.
(14.) Guná गुना.
(15.) Tídá टीडा.
(16.) Toi टोर.

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* His descendants are found in Merwárá.

† The twenty-four Baghráwat brothers were the descendants of Bágh Rao in the service of Prithvi Ráj Chauhán. They acquired a reputation for benevolence and courage but are said to have been addicted to spirituous liquors.

A Gujar woman bore to the eldest brother Sawái Bhoj a son Devá, worshipped under the name of Deváji by the Gujars. All the brothers lost their lives on the Khári river in Meywar, fighting against the Rájá of Bhanái in Ajmere ; their deeds are still sung by the villagers.

(17.) Máhal माहल.

(18.) Matri मतरी.

(19.) Sálá साला.

(20.) Devá देवा.

(21.) Har Ráj हरराज had twelve sons only two of whom had issue.

(22.)	Pithá पीथा.	(22.)	Mándá मांडा.
(23.)	Tújo टूजो.	(23.)	Nálá नाला.
(24.)	Bhaggo भग्गो.	(24.)	Akhá अक्खा (अक्षय).
(25.)	Ráwut Túba तूबो.	(25.)	Gopál गोपाल.
(26.)	,, Máru मारू.	(26.)	Rámo रामो.
(27.)	,, Gumánu गुमानू.	(27.)	Mannu मन्नु.
(28.)	,, Sirdáro सर्दारो.	(28.)	Kishno किश्नो.
(29.)	,, Bágho बाघो.	(29.)	Shambhú शंभु
(30.)	,, Dayá Rám दयाराम (the Ráwut of Sikhedá.)	(30.)	Tejá तेजा.
		(31.)	Sri Rám Patel श्रीराम पटेल

who is now living in Sarsá, he gave away a lion with all its trappings to his dependants, and thus acquired great fame among his caste people.

The Moṭhís Minás claim to have sprung into existence eight hundred years ago, but a study of their genealogy shows that a later period must be assigned to their origin.

The Minás of this clan are a tall, handsome, and dark complexioned race. Their dress has apparently been modified by contact with more advanced races. It generally consists of a dirty dhoti, a turban, and a bagtari or jacket.

Bows, arrows, and daggers are their principal weapons; they also, however, carry swords and muskets, and are courageous in battle. They live mainly on barley and Indian-corn, but eat meat as well, and indulge in spirits. Though brave they are generally a poor class, and lead a humble life. In addition to cultivation they live by thieving, which with them is a sort of hereditary profession. They are loyal to the Government—their number is very limited in the majority of villages. They worship Máláji, and do not mount a white horse, or use Amauwá (आमौवा) dye (a colour prepared with turmeric and the husks of pomegranates mixed with alum), in consequence of a curse pronounced by Máláji on that colour.

Legend of Máláji (*alias* Mángatji) as delivered orally by Minás:

When the Bhagráwats were killed, Sándhu, a Gujar female, went with her child Deva Náráyan, six months old to her father's house.

When the child grew up, he came with his mother to Gothá, and when starting for Ráṇ to revenge the murder of his ancestors by the chieftains of that place, as well as to take back the colt of the mare Boli from them, he was enjoined by his mother to take with him the youngest of the five sons of her sister (whose husband was Satuji Pawár), who was in the village Bhányela, that formed one of the twelve villages in Satuji's jághir.

This lady was a kanchuli badal sister, (*i. e.*, one who had exchanged bodices) of Deva Narayan's mother.

Deva Naráyan acted on the order and took Máláji with him to Rán.

He fought with the chieftains of the place and was returning victorious with the colt, when the Ráṇ people pursued him; Deva Narayan went straight to Gothá, but ordered Máláji to face the enemy, and to kill anything he might meet and bring with him one of the legs of whatever he slew.

Máláji defeated the pursuers, and on his way back to Gothá, he saw a cow, killed it, and put one of its legs in the horse's food-bag.

The legend says, the cow was not real, but had been left there by Deva Náráyan to try the faith of Máláji; Deva Náráyan having formed it of the dirt of his body and inspired it with life.

When Máláji came in sight of Deva Náráyan, the latter refused to touch him—accusing him of cow-slaughter. But Máláji instantly sprinkled ambrosia on the victim, which sprang into existence again: this act pleased Deva Náráyan highly, and he pronounced benediction upon Máláji, saying he himself had only 12 kalás (art or trick), but Máláji would have one kalá in addition; and made him proof against shot, arrow, and sword, but said if a Thori* should chance to hit him with an arrow of green reed (sánṭhi) after wetting its tip with his saliva he (Máláji) would at once die, and be translated to heaven.

Máláji took leave of Deva Náráyan and returned to Bhánylá: after a time a quarrel broke out between him and the Baghráwats, on the ground of division of shares, which was followed by a fight, but Máláji could not be killed, because Deva Náráyan's benediction was upon him.

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* A very low class of people.

However, the secret of his vulnerability was unwittingly made known by his wife Bhatyániji, to the attendant who dressed her hair, and she revealed it to her husband, and he in turn to the Baghráwats.

They accordingly secured the services of a number of Thoris for the special purpose of killing Máláji, and ordered them to try to shoot him with an arrow of green sánthi, wetted with their saliva.

One day, as Máláji was seated at a window of his house, with one leg hanging down, a Thori hit him with an arrow in execution of the order of the Baghráwats.

Immediately, Máláji extended one of his feet to the ridge of the eaves and the other to a heap of cowdung cakes, and crying out " chhút, chhút " " fie ! fie !" ascended up to heaven.

During the night he used to come and visit his wife Bhatyániji, and told her not to make known the fact to anybody.

One day his mother seeing her widowed daughter-in-law adorning herself, asked her the reason; she was obliged to tell her the secret.

She told her mother-in-law to hide herself among tulsi plants at night and behold what passed. She did accordingly; Máláji came and passed the night—but when on the point of departing in the morning, his mother held him by the hand. He said, if his secret had not been thus revealed, a person of better qualifications than himself would have been born in the family, and he himself would have assisted the members of the family in fight in a tangible shape, but now he would come privately, and keep himself in advance of a hero, who would see him.

Moreover, he commanded the family never to use the following articles :

(1) A white cloth ; (2) an ivory bangle ; (3) an indigo-coloured and bordered gown having angular bits of cloth sewed on to it, and other articles that his wife had on her body at the time.

Amauwá dye, an arched door, double folding shutters, a heap of cowdung cakes and a gable roof are never made or used by Moṭhís Minás.

After this Máláji went to heaven, taking with him his wife, the white horse (that had been given to him by Deva Náráyan when going to Raṇ), and its groom.

The horse was white, and that is the reason why the Moṭhís Minás do not mount a white horse.

Máláji is worshipped on the 9th day of the month, and the Navami of Asarh sudi (आषाढ़सुक्ला९) is the particular day of his worship, when a fair is held in his honour at his shrine on mount Rohi in Bháṇylá.

Thoris are not allowed by the Minás to enter their villages, because the latter owe them a grudge for their having killed Máláji.

THE PARIHÁR MINÁS.

The Parihár Minás exceed in number all the other castes inhabiting the District of Jájpur; forty thousand men of this branch live within the bounds of Meywar, Tonk, Bundi,* and Jeypore, and are systematically organised.

Origin and genealogy, as given by the Jágás and Dholis:

(1.) Náhar Ráo नाहर राव (Rájá of Mandore in Marwar).
(2.) Mál Deo माल देव
(3.) Súpan सूपन
(4.) Járu जारु
(5.) Thunsí थुनसी
(6.) Sevá and Somá सेवा, सोमा.

These two (No. 6) went to Toḍá between S. 1503 and 1547 and were granted jágirs by the Rájá of Toḍá.

(7.) Sámdá सामदा—the legitimate son of Somá, repaired to Málwá.

Then Somá married two Miná women, named Kerdí केडदी and Kabrí, काबरी who bore him six sons:

(*a.*) Hápá हापा whose descendants are found towards Umargaḍh.
(*b.*) Nápá नापा } died childless.
(*c.*) Sadná सदना } died childless.
(*d.*) Sáṇwul सांवल—who was killed.
(*e.*) Dená देवा—whose descendants are traced to Minás still living in the Bundi state.
(*f.*) Bhojá भोजा—his issue exists in Jájpur.

From Bhojá was born:

(8.) Dená देवा
(9.) Hájá हाजा

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* The date of their advent is fixed about the 12th century A. D., confirmed by an inscription in a temple at the Kheran village of Oomur.—Mr. A. N. Bruce's "Report on the Parihár Minás" 1865-67. Also Sherring's "Hindu Castes and Tribes," Vol. III, p. 80.

From Hájá were born :

Dámá दामा ; Rámá रामा ; Sálá साला

Sálá offered his head to Mahádev ; the descendants of his brothers are extensively spread.

Viz. : Dámá दामा
Udá ऊदा
Hálú हालु
Raṇ Mall रण मल्ल
Netá नेता
Isar ईसर (ईश्वर)
Gangá गंगा
Manohar मनोहर
Dangá डगा
Bhútá भूता
Dípá दीपा
Mádhu माधु (माधव)
Bhár Mall भार मल्ल
Sálgá सालगा (शालिका?)

Rámá रामा
Narbad नर्बद
Manná मान्ना
Ruggá रग्गा (रघु)
Bhomá भोमा
Lálá लाला
Mahá Rám महाराम
Nánji Patel नानजी पटेल
(at present in Intodá.)

It is said that (No. 13) Raṇ Mal, son of (No. 12) Halu, received the grant of the village of Luhári from Rája Jang Bahádur* of Málwá.

The wife of Isar (No. 15) (son of Nela) (No. 14) immolated herself on the funeral pyre, and the platform erected over the spot where she was reduced to ashes is still to be seen.

There have been born heroes in this tribe, which is called after the race from which it is derived. The Parihár Minás are a brave and athletic race, tall, handsome, and well-built ; but revengeful ; and maintaining blood-feuds for generations. They wear a frock, and dhoti of cotton cloth. Their principal weapons are bow and arrows, dagger and sword : having been disarmed by the British

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* The correct name seems to be Báz Bahádur, who sought refuge with M. R. Udai Singh of Meywar, when Akbar deprived him of Málwá.

Government in S. 1916 (= A. D. 1860) they do not publicly carry arms. Their food consists of wheat, barley, Indian corn, and ghi, they indulge in spirits and eat largely of flesh of all kinds, save that of the boar which, strange to say, they hold to be sacred.

Generally they are a well-to-do people, very few of them being poor, and most of them owning large herds of cattle. Theft is their general profession, and some of them follow dacoity, they practise husbandry merely as a nominal pursuit.

They have a strong feeling of attachment to their clan, and readily unite against outsiders. They have all the obstinate courage of hill men, and are disposed to be turbulent and troublesome subjects, requiring a strong hand to keep them in order.

When not called upon to fight against their own tribe, the Parihár Minás are very reliable and daring mercenaries.

The Minás of this branch are very cunning and expert thieves, and do not always fulfil the conditions of compacts in the nature of black-mail entered into with travellers.

When a theft is traced home to them, and the perpetrators of the crime are fined, they pay the amount, but recompense themselves by similar ventures at the earliest opportunity.

They principally worship Mahádev (Shiv).

It is not held by them to be inconsistent with their dignity, to give their daughters in marriage on payment of money ; but as their number is very great, and the other Miná castes are comparatively few in number it rarely happens that the latter have to marry the daughter of a Parihár Miná, and whenever they do so, they pay a fine, so low are the Parihárs held in estimation by the other Minás.

The Parihár Minás used to kill their daughters in former days, but this barbarous practice has gradually died out since the Camp at Deoli has been in existence, and the monthly statement of births and deaths is submitted to the Agency.

The crime has not been heard of for some years past. On referring to the statement for Samvat 1936 (= A. D. 1879-80) for Pepleá, the number of boys was found to be in the ratio of 22 : 0 to girls.

The younger brother can marry the widow of the elder, but a woman cannot become the wife of her sister's son : the other rules of Nátá (widow-marriage) all hold good in the case of the Parihárs.

SINDAM MINÁS.

Jorji or Zorji Rathor जोरजी राठोर—chief of Kálinjar in Kángrá, had a younger son named Jamráj, from whom descended the following line—

Jam Ráj जमराज.
|
Maha Ráj महाराज.
|
Karnách कर्णाच.
|
Pápú पापू.
|
Rámá रामा.
|
Devá देवा.
|
Mahárakh महारख (? महा ऋषि).
|
Kor कोड.
|
Mainál मैनाल.
|
Thárá थारा.

Thárá married a Míná female Sári—the result of their union came to be called Siddámá सिद्दामा.

Kálá, काला came to Meywar.

His descendant (in the 15th generation) named Sánvlá Patel सांवला पटेल is living in Náthún.

From the numbers mentioned above, the family may be said to have existed for not less than three or four centuries.

They worship Devi and Bhairava; they pay no reverence to Máláji; other facts about them are the same as those of the Maṭhís Minás.

DHODHING.

Tej Pál Chowhán, took to wife the bride of Dhanná Míná, from the union sprang the Dhodhing Minás, who originally dwelt in Mándal, but subsequently removed to the Kherar.

Kishná the Patel of Tilá is in the 23rd generation from Tej Pál—a fact from which the family is concluded to have been founded about six hundred years ago. Chárbhuja is their chief deity.

They resemble in all respects the Parihárs and Moṭhís Minás.

GENERAL REMARKS.

Among the Súdra class, the Minás of the Kherár and the Bhils of the hilly tracts are very interesting, and a comparison is here drawn between them.

Bhils.	*Minás.*
(1.) Wild race, a blackish complexion.	(1.) Ignorant ;—wheaten complexion.
(2.) Follow theft occasionally and way-lay travellers.	(2.) Occasional robbers but habitual thieves.
(3.) Loyal to the State, and hard-working.	(3.) Not very loyal.
(4.) Inhabiting an area of 600 miles.	(4.) 400 miles.
(5.) Wear breeches not covering the thigh, and a cloth passing round the body cross-wise over the shoulders—both of country-cloth.	(5.) Frock and dhoti.
(6.) Their weapons consist of bow and arrow ; they are well-skilled in hill-fight.	(6.) Spear and dagger : capable of fighting on the plains, as well as in the hilly tracts.
(7.) Worshippers of Káláji.	(7.) Worship Mátáji.
(8.) A man can marry five women at a time.	(8.) A man can take two wives.

Neither of these races is bound by any religion or social law, homicide is to them a mere sport.

They organise a system of Tháná of their own caste-men for the prevention of theft and highway robbery.

They do not plead guilty even on punishment being dealt out to them.

They are well aided in their profession by hills and forests.

The Minás regularly pay rent, and instalments of debts. They never allow other castes to settle in their villages.

THE CONTRIBUTOR'S OWN VIEWS.

The accounts of the origin of the Minás, given in the foregoing pages, according to the views expressed by well-informed people of that tribe, and the traditions of the bards, are in my opinion not correct, seeing that mistakes generally occur in the records kept by the latter, except so far as the genealogies comprised in a period of nearly the last three centuries are concerned.

Therefore, I take the liberty of here stating my own views as to the origin of this interesting race somewhat in detail, which urges me to go back to a very, very ancient epoch of history.

There was no law to prohibit the four castes into which the Aryans split up after their immigration into India from Central Asia regions from blending together:* in fact the differences between them consisted merely in the variety of the particular calling pursued, or the degree of excellence acquired by each.

Visvámitra, Válmiki, Vedavyása, Dron A'charya, may serve as instances as they were reckoned among the Bráhmans on showing by their proficiency and behaviour, that they deserved the promotion, notwithstanding that the first was originally a Kshatriya, the second a Bhil, the third sprung from a Kahári† female and the fourth of unknown parentage and found in an earthen vessel.

As time advanced and ages rolled on, and the same profession continued to be pursued in a family for generations, every class came gradually to be distinguished by its ancestry; but nature had its own way, and the several races intermarried among themselves, thus giving birth to an immensity of castes and tribes.

I. A person descended from a Vaishya father and a Bráhman mother, is called a Vaideh:

(*a*) वैश्यान्मागधवैदेहौ-राजविप्राङ्गनासुतौ ‡

From a Vaishya father by a Kshatriya woman, is born a Mágudh; while from a Vaishya by a Bráhman wife, springs a Vaideh.

(*b*) वैदेहः पुंसिः—वैश्याद्ब्राह्मण्या मुत्पन्नोसंकर जात्यन्तरे. §

A Vaideh is a mixed caste derived from a Vaishya man and Bráhman woman.

I conjecture that a low class of people dwelling in large numbers among the hills to the south of Oodeypore and called Vaid—the men among them serving as barbers, and the females as midwives, are no other race than the Vaidehas mentioned by our great lawgiver: they bear no sort of resemblance to any other caste.

Probably, the Vaidehas, when looked down by the Aryans of pure blood, by reason of their mixed origin, preferred to go over to live among the Bhils (an aboriginal race, considered one of the lowest class that can be imagined, by the Aryan conquerors)—who regarded them with a certain degree of respect, as they were descendants of Aryan parentage.

II. Med are the people born of Vaideh fathers by Bhil mothers:

(*a*) वैदेहिकादंध्रमेदौ-बहिर्ग्राम प्रतिश्रयौ. ||

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* Cf. Wilson's "Indian Caste," Vol. I, p. 117.

† Fisherwoman.

‡ Manu, 10th chapter 11th verse.

§ Sabdárth Chintámani (शब्दार्थचिंतामणिः) Vol. IV, p. 450.

|| Manu, 10th chapter 36th verse.

From the Vaidehas are descended the Andhras and the Meds—destined to live (in the outskirts of or) without the town.

(*b*) मेदः पुंलिङ्गः—

वैदेहेन निषादभार्यायां जनिते अंत्यजविशेषे *

The Meds are a mixed class resulting from the intermarriage of a Vaideh man to a Bhil woman.

The Meds thus descended from the Vaidehas spread in the hilly tracts mentioned above.

After the lapse of centuries perhaps, their name was most likely modified into the form Mew, while the portion of the country inhabited by them was called *Mewal* (contr. of *Mew* + *Alaya* मेव + आलय.

The pergunnah now known by that name is no longer occupied by them, not even to the least extent or number.

Most probably the Mews now found in the tract called Mewát, subject to the Ulwar and Bhartpore states, were expelled their original abode, I suppose, by the Gujars [a tribe from Sindh, who were the barbarians† known to have sacked the kingdom of Vallabhi in the peninsula of Saurásthtra—which came to be called after them Gujarát] who advanced towards Mewul, either, in pursuit of the descendants of the Vallabhi kings of the Solar Line, who had sought shelter in the southern ranges of the Arvallis, or with a desire to extend their sway over those hill tracts where small ponds dug out by them still survive as the landmarks of their authority.

Of course the Mews would or could not have been expelled all at once, but only gradually after the Gujars had contracted marriages with their women; and I suppose the Minás, (Menás) to be a cross-race between them. Their present name seems to be merely a contraction of the full name Mewna (given them by the Gujars, who regarded them of a lower standing than themselves.

The term Mewna मेव ना means,—descendants of the Mews—(ना) ná being the Gujrati‡ particle for the preposition of, signifying relation.

This tribe is found to live in increasing numbers in Mewal and in the hilly land to its S. E. while the hills to its west are occupied by the Bhils [the Mews having emigrated to Mewat as mentioned above].

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* शब्दार्थ चिन्तामणि Vol. III, p. 666.

† (*a*) Forbes' Rás Málá.
(*b*) Wilson's Ind. Caste, Vol. II, p. 91.
(*c*) Bun Ráj Chaorá.
(*a*) Gujrati story.

‡ Gujrati words are still greatly mixed with the spoken language of the people who live in Mewál and in the hilly tracts of Mewár generally. For Mewálsee *ante* p. 29.

The evidence of the Mews having been the original inhabitants of Mewar is borne by the facts given below.

(1) Mewar is a compound word composed of Mew and Aṛ मेव आड़ and means a land of shelter to the Mews.

(2) Mewal is still the name of a tract (forming part of Mewar) which shows that at some period or other its fastnesses formed the dwelling-place of the Mews.

(3) Mewát a compound of Mew and At—मेव आत, the name given to the part of the country where they are now found, evidently proves it to be the place of their advent from other parts and that they are not the primitive inhabitants (the children of the soil).

The connection between the Mews and the Minás is quite clear on the following grounds:—

(1) The Mews, as well as the Minás, live, not so much in villages as in congregations of separate houses or huts which are called Pals by both of them.

(2) The names of the various clans among them are found to correspond.

(3) The appearance of the Minás living in Mewal at the present day differs from that of the Bhils, while it closely resembles that of the Mews.

A number of the Mews who took up their abode on the northern borders of Mewár [when the tide of emigration of the tribe flowed towards what is now called Mewát,] are called Mers or Mairs [a term which is commonly used in Rajpútana for border* or boundary] or the border people, and the part of the country adopted by them for residence is called Mairwarra up to date.

(1) I fancy that these Mers intermarried with the Gujars for a second time, when the latter left the southern and advanced towards the northern portion of Mewár, and it may be, as the bards would have it, also with the Rájputs, preferring the Kherárs for their habitation; at this stage they resumed their name Miná, the original designation of their family.

(2) Moreover the fact of the Minás of the Kherars being the result of a union between the Gujars and the Mews, is confirmed by the following similarities between them and the Gujars:

(*a*) Similarities in appearance and customs.

As the Aryan Hindus perform funeral obsequies to the manes of their forefathers in the dark half of the month of Aswin (Asaj or Kuár), in the same way, both the Minás and the Gujars perform the ceremony annually, on the 15th day of the dark fortnight of Kartik in the course of the night of Dewali.

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* Mer or Mair does not signify a hill, as mentioned in J. De La Touche's Settl. Rep. p. 38 and in Capt Powlett's Kerowli Gazetteer.

The proceedings do not differ materially in these two peoples; both of them dip *Ándhijhárá* (आंधी झाड़ा) and Mundapáti (मूड़ा पाती) and Gúmá (= Pharnaceum Mallugo) into water during the ceremony.

(*b*) The Minás as well as the Gujars consider themselves justified in marrying the widow of the elder brother.

(*c*) The Kanyars (a cognate race to the jágás and bards), whose duty it is to recite the deeds and genealogies of their employers, regard the Minás and the Gujars in the same light.

(*d*) The Gujars worship Devaji, who is the same hero as Málá ji or Mángut ji (whose legend is given at the conclusion of the account of the Moṭhis Minás), adored by the Minás.

(*e*) The conflicts between the two are settled as between people on an equal footing.

(*f.*) The Gujars and Minás smoke together. They eat out of the same pot, but not out of the same plate.*

CONCLUSION.

Further research will probably bring to light other points of resemblance between the Gujars and the Minás.

This paper has been written as the result of an enquiry concerning the Minás, it being rather an easy task for one who has passed the first 34 years of his life at his jágir forming a part of the Kherárs.

A *pond* of legends is given in this essay from which it is expected scholars will be able to *fish* much useful information.

Coins supplementary to Mr. Thomas' "Chronicles of the Pathan kings of Delhi." No. IV.—*By* CHAS. J. RODGERS, A. M., A. S. B. &c.

I have had the accompanying two plates in hand for nearly four years. The reasons for this long period are not far to seek. This is my fourth supplement to Mr. Thomas' excellent work. All coins are now-a-days getting scarcer and scarcer, except the ever-decreasing-in-value rupee. Hence rare and unedited coins must of necessity be seldom met with. As, hitherto, I have had only the Panjáb in which I could search, the coins coming under my notice are mostly those obtained in the bazárs of Panjáb cities. But my coins correspondence has during the last four years considerably increased, and many friends have placed their treasures at my disposal. Of the thirty coins here drawn very few are in my own cabinet now, though at one time they were mine. So far as I know they are at present thus distributed :—

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* Capt. P. W. Powlett's Kerowli Gazetteer, p. 19.

(1.) Gold coin of Fath Khán and Fíroz Sháh, new type, found by me, now in possession of General Cunningham.

(2.) Rupee of Shams ud Dín Altamash ; cabinet of L. White King, Esq., LL. B. C. S., Ajmír.

(3.) Qila Deogír Mohur of Tuglaq Sháh I. found by me, now in the Government Central Museum, Madras.

(4.) Dám of Ibrahím Súr, my cabinet.

(5.) Dám of Sikandar Súr, my cabinet.

(6.) Mixed copper and silver coin of Firoz Sháh and Muhammad Sháh : my cabinet, from General Cunningham.

(7.) Gold Mohur of Ibrahím Sháh of Júanpúr. Dr. Da Cunha's cabinet, Unique.

(9.) Daulatábád Mohur of Tuglaq Sháh I. Dr. Da Cunha's cabinet.

(10.) Láhore rupee of Sikandar Súr Ismáil Dr. Da Cunha's cabinet. Unique with mint and date.

(11.) Mohur of Násir ud Dín Mahmúd Sháh ; found by me, now in Government Central Museum, Madras.

(12.) Square Mohur of Alá ud Dín Muhammad Sháh, General Cunningham. Unique.

(13.) Small copper coin of Ibrahím Lodí and Ráma Maharajah of Kángra, cabinet of J. D. Tremlett, Esq., M. A., Judge of the chief Court, Lahore.

(14.) In all probability a duplicate, with further development of inscription ; from the same gentleman's cabinet.

(15.) Small silver coin of Násir ud Dín Mahmúd. Formerly in the cabinet of Alexander Grant, Esq., C. I. E. of Cheltenham, then in mine, now in the Government Central Museum, Madras.

(16). Rupee of Mubáriz ud Daniya, Mohammad Sháh Súr, General Cunningham.

(17.) Half rupee of Ibrahim Súr. The only silver coin of his known up to the present, General Cunningham.

(18.) Mohur of Násir ud Dín Khusrau Sháh. Found by me at Amritsar. Exchanged to J. G. Delmerick, Esquire ; sold to General Cunningham : exchanged to me : now in the Government Central Museum, Madras.

(19.) New type in copper of Kutb ud Din Mubárak Sháh. My cabinet. Duplicate in the Cabinet of Mrs. Stoker of Attock, now of Dharmsalla.

(20) (21) and (22.) Brass coins of Firoz Sháh Zafar, bin Firoz Sháh. My cabinet.

(23.) Anonymous Coin, my cabinet.

(24.) New type of Abú Bákr Sháh bin Firoz Sháh. General Cunningham.

(25.) New type of Firoz Sháh, Zafar, son of Firoz Sháh Tuglaq. My cabinet.

(26.) *Chaital.* General Cunningham.

(27.) New type of Changez *Khán.* My Cabinet. Duplicates cabinets of Col. Mat. Gosett, Dorsetshire Regiment, Aden, and of L. W. King, Esq., Ajmír.

(28.) Posthumous Coin of Mubárak Sháh. My cabinet, duplicate General Cunningham.

(29.) Square Mohur of Islám Sháh Súr. The only gold coin of this king known. Found by me in Amritsar, now with General Cunningham.

(30.) "Dokání" piece or Dokánike. General Cunningham.

From this it will be seen that I possess now only eleven of the coins here described and that six others were found by me and passed on to safer custody. I here take the opportunity of thanking my friends General Cunningham, Dr. Da Cunha and J. D. Tremlett, Esq. for the loan of the coins they so kindly allowed me to draw.

Nearly all the coins are unique so far as our present knowledge goes. I know of duplicates only of Nos. 3, 4, 5, 16, 18, 19, 20, 22, 27, and 28. But further research will I daresay unearth more. Just now there seems a lull in numismatic researches and in finds. Roads, railways and canals being finished and not in progress account for this. I have heard of only one find of coins during the last four years. About a year ago a lot of heavy mohurs of Akbar and Jahángír appeared in the Láhore bazar, I could not get to know where they had been found. Many of the Jahángírí mohurs were "*Kalimah*" ones. These were as fresh as if just from the mint. I have just returned from a tour of four months, and during the whole of this time though I examined the bazars of every place I visited I obtained only 3 or 4 new coins out of a total of nearly 300 purchased for the Archæological Survey. Every place seems swept out.

Owing to the fact that I drew these coins as they came into or passed through my hands they follow no chronological order. Last year I commenced plates for a fifth supplement. This will I hope be the last. When it is finished it is my intention to add a list of the coins I have given in chronological order.

Several of these coins have already been published in England by the Hon'ble Mr. Gibbs and by the British Museum. But as many of the members of the Asiatic Society of Bengal are not members of the Numismatic Society of London and do not see the catalogues published by the British Museum, I do not think any harm will be done by my retaining them in my plates.

I will now decipher the inscriptions on the coins as far as I can.

Pl. I. No. 1.

Obv.	*Rev.*
حبيب الشرق و الغرب	في زمن الامام
فتح خان فيروز شاه	امير المومنين ابو عبدالله
حل الله ظلاله	خلدت خلافته

Mr. Gibbs reads the first line of the obverse differently. Instead of Habíb he gives Amír. I do not think it can read *Amír;* I am not satisfied however with *Habíb.* He also reads the last line as "*as Sultán.*" In this he is undoubtedly wrong.

No. 2.

Obv.	*Rev.*
السلطان المعظم	لااله الاالله
شمش الدنيا والدين	محمد رسول الله
ابو المظفر ايلتمش	المستنصر بالله
السلطان ناصر . .	امير المومنين

No. 3.

Obv.	*Rev.*
السلطان الغازي	غتلق شاه
غياث الدنيا و الدين	السلطان ناصر
ابوالمظفر	امير المومنين

Margin :— . . . . قلعة ديو گير في سنة ايثني عشرين و سبعمايه

There is a duplicate of this coin in the British Museum. Thomas edits a rupee of this Deogír Mint. But these two Mohurs are all I have heard of from this mint.

No. 4.

Obv.	*Rev.*
ابوالمظفر	في عهد
السلطان ابراهيم	امير الحامي
خلد الله ملكه	الدين والدزان
	۹۶۲

No. 5.

Obv.	*Rev.*
المتوكل على الله	As on No. 4.
سكندر شاهي	
السلطان مي	

No. 6.

Obv.	*Rev.*
سلطاني	المومنين
فيروز شاه	نايب امير
محمد شاه	٧٩٠

No. 7.

Obv.— الواثق بتائيد الرحمان ابو المظفر ابراهيم شاه السلطان

Rev. في زمن الامام
نايب امير المومنين
ابو الفتح خله
خلافته

Margin :— ضربت هذا الدنيا في سنه ايثني و اربعين و ثمانمايه

No. 8. *Obv.*— Same as in No. 7.
Rev.— Same as in No. 7.

Margin :—Same as in No. 7. The word used is *dinár*, but the unit is *eight* not *two* as in No. 7.

No. 9.

Obv.	*Rev.*
السلطان	ابو المظفر
السعيد الشهيد	تغلق شاه ٧٢٦
الغازي غياث الدنيا	انار الله برهانه
و لدين	

Margin :—ضرب هذا السكه في بلدة دولت ابا و سنه ست و عشرين و سبعماية

The *six* in the reverse looks like a *one*. The coin, however, being posthumous as shown in the margin the reading I have given must stand.

No. 10.

Obv.	Margin at bottom.
سلطان سكندر شاه	لاهور
اسماعيل سور	On left
٩٦٢	المتوكل علي

Top and right hand not legible.

Mr. Thomas read neither *Ismáel* nor *Súr*. Yet both words are on the coin he gives. The British Museum Catalogue reads *Súr* but deciphers Ismáel thus اسماعاب which of course means nothing. This coin of Dr. Da Cunha's is invaluable as giving the mint *Lahore* and part of the margin which agrees with the inscription on Sikandar's copper coin No. 5, noticed above. How he got the name Ismáel I can't say. Ferishta says his name was Ahmad *Khán*.

دران مدت احمد خان سور حاکم پنجاب که پسر عم شیر شاه میشد و یک
خواهر عدلي در جهالهٔ نکاح او نیز بود خبر زبوني عدلي و استیلاي ابراهیم
شاه شنیده اورا هم هوس پادشاهي و سروري در سر افتاد و هیبت خان
و تاتار خان که از امرای سلیم شاه بودند با خود یکجهت کرد و خود را ملقب
سکندر شاه ساخته با ده هزار سوار از لاهور متوجه بلده آگره شد ۰

This rupee was therefore probably struck by Ṣikandar before commencing his march from Lahore to Agra. It is just possible that Ferishta is wrong in calling him Ahmad Khán before he ascended the throne. Perhaps his name was Ismáel Khán.

The reverse of this coin has the *kalimah* in a square. The margins are only partially legible. They probably contained the names and titles of the four companions of Muhammad.

The rupees of Sikandar are very rare. General Cunningham has one. The one here given is Dr. Da Cunha's. His *dáms* are also very rare. But I think I know of some half dozen.

No. 11. *Obv.*	*Rev.*
السلطان الاعظم ناصرالدنيا و الدين ابو المظفر محمود بن السلطان	في عهد الامام المستعصم امير المومنين

Margins :— ضرب هذا السكة بحضرت دهلي ... احدي و ستين و ستمايه

Thomas gives no gold coin of this king. Mr Gibbs, however, edits one and refers to mine which is, however, a broader piece than his. The British Museum has not got one.

It will be noticed that this gold coin has the inscription in circles and not in squares as the rupees have. This it seems was the custom. The margins too are on both sides and are repetitions of one another. This I have noticed as being followed by Gyás ud Dín Balban, Muizz ud-Din Kaikabád, Jalál ud Dín Fíroz Sháh and Ala ud Dín Muhammad Sháh. During my late tour I obtained a rupee of the last named king and its inscriptions are in circles. When we get gold coins of the other kings such as Ala ud Dín Masaúd and Muizz ud Dín Bahrám Sháh they will perhaps follow the same custom.

No. 12. This is a square mohur of Ala ud Dín Muhammad Sháh Mr. Gibbs edits this and gives a second. The inscriptions are the same as on Ala ud Dín's ordinary mohurs and rupees. There are no margins. It may have been struck from the die used for a rupee.

Nos. 13 and 14 are coins bearing the joint names of Ibrahím bin Sikandar Lodi and that of a Mahárájah of Kangṛah. When I wrote my paper on these Mahárájahs I had not seen a coin of this kind. I now possess several.

No. 13. *Obv.*	*Rev.*
ابراهیم	श्री राम
سکندر	देव

Ráma died in 1528 A. D. Ibrahím died in 1526 on the plain of Panípat. Ráma was succeeded by Dharmma. But No. 14 is not a coin of the latter Mahárájah. I cannot assign this coin positively to any Mahárájah of Kángṛah. At any rate the coins show that the last Lodi Sultán was suzerain of Kángṛah.

No. 15. *Obv.*	*Rev.*
ناصر الدنیا	السلطان
والدین	الاعظم

This small silver coin is fellow to the one of Gyás ud Dín Balban's that I edited in the last supplement. It is the only one I know of.

No. 16. *Obv.*	Margins.	
سلطان محمد عادل	مبارز الدنیا و الدین	Top
خلد الله ملکه	ابو المظفر	Left
و سلطانه اعلی احشانه	٩٦١	Right
	श्री सुरतानमहमद*	

Rev. Kalimah in square.
Margins: names and titles of the four companions of Muhammad.
The British Museum has two specimens of this type.

No. 17. *Obv.*	*Rev.*
ابراهیم شاه غازي	خلدالله ملکه
سلطان	و سلطانه
ابو المظفر...	و اعلی شانه
	٩٦٢

This is an eight-anna piece and is as yet the only silver coin of Ibráhím Súr that is known. His copper dáms are not at all common. We ought, however, to have his rupees. These must be sought for.

No. 18. This mohur of Násir ud Dín Khusrau Sháh follows the same type as the rupee given by Mr. Thomas. It was probably struck from the die used for a rupee. The object I had in view when I drew this was to put Mr. Thomas right in his reading of the obverse where he puts الواثق بنصر الرحمن as الواثق خير الرحمن. Mr. Thomas was not in fault The rupee he used was. I had been perplexed over the word *banasr*. Better specimens of this mohur are now known. But the rupee given by Mr. Thomas is still unique.

No. 19. Pure copper.

Obv.	*Rev.*
الامام الاعظم	مبارک شاه
قطب الدنيا	السلطان
و الدين	

Nos. 20—22

From a comparison of these three coins we get—

Rev. in centre فيروز شاه

Margin : ظفر بن فيروز شاه السلطاني

Obv. خليفه ابو عبدالله خلد خلافته

These coins are all of brass. Mr. Thomas does not notice them. I think his No. 257 given under Fíroz Sháh Tuglaq may be one of these. His weighs 106 grs. I have five specimens. They weigh 100, 102, 103, 104, and 113 grs. As his had no margin he could not of course assign it to Fíroz Sháh Zafar.

No. 23. This coin is struck with two reverse dies. These dies were in use in the time of Fíroz Sháh Tuglaq.

الخليفه	الخليفه الله
امير المومنين	ابو عبدالله خلد
خلد خلافته	خلافته ٧٩١

No. 24. *Obv.*	*Rev.*
فيروز شاه	خليفه ابو
بن ابو بكر	عبدالله خلد
شاه	خلافته ٧٩١

In reading the obverse of this coin we must not take the words as they come but according to the obvious meaning, or we shall have Fíroz Sháh the son of Abu Bakr Sháh. There were many types of coins struck in those troublous times. It is a wonder the words are so plain.

No. 25. *Obv.*	*Rev.*
فيروز شاه	المومنين
ظفر ابن	نايب امير
فيروز شاه	٧٩٠

No. 26.

Obv. in Double circle.	*Rev.*
چیتل	دوکاني
	اماني

The Dokání piece given in Thomas weighs 25 grs. This one given by me from General Cunningham's cabinet weighs 51·7 grs., or twice as much as the one in Thomas. Thomas gives a *chaital* weighing 74 grs. which was equivalent, the coin inscription says, to one *kání*. I am afraid people's notions of these coins must have been somewhat mixed up. In the time of Akbar, however, as I have shown, a *fulús* was a coin of no fixed weight.

No. 27.

Obv.	*Rev.*
عدل	الناصر
الخاقان	لدين الله
الاعظم	امير المومنين

Násir ud Dín was Khalífah from 575 to 622 A. H. Changiz Khán, the first great Kháqán, reigned from 603 to 624. I have therefore no hesitation whatever in assigning this coin to Changiz. The obverse here given tallies with that of No. 77 in Thomas.

No. 28.

Obv.	*Rev.*
مبارک شاه	دار الملك
سلطاني	دهلي
	٨٥۴

Mubárak Sháh died in 837. This coin is dated 854. Those were the days of posthumous coins. My list of years gives many.

No. 29. Mohur of Islám Sháh Súr. Unique.

Obv.	*Rev.*
اسلام شاه	
سلطان	Kalimah.
شیر شاه	
خلد الله ملكه	

No. 30.

Obv.	*Rev.*
في العهد	دو كاني
السلطان	or دو كانكي

I can only read what is on this coin. It is evidently one of Muhammad Tuglaq's pieces as he was fond of using فيعهد on his coins. It may, however, have been issued by one of his successors. The archaic style of the coin must come for a good deal in its assignment.

From the present dearth of coins of any antiquity or rarity it will at once be seen that now-a-days to attempt to form a cabinet, an Imperial Cabinet for India, would be almost an impossibility. But it is an end I have not lost sight of. I think it incumbent on all who care for the future of India to make the attempt. India is now fast awaking from her lethargy of centuries. Many of her sons are fully awake. Some have already given themselves to historical enquiries. It is well that all should know something about the pit from which they have been digged. I know of no more interesting study in history than that of the coins of a country. Especially is this the case in India where the first work of a king on ascending the throne is to set his mint to work in order that throughout the length and breadth of his province, the circulating medium should inform the people as to the name and titles of the sovereign.

But many of the best coins of the country have already gone out of it. The cabinets of Sir Edward Clive Bayley, Mr. Edward Thomas, Alexander Grant, and General Cunningham contained many coins of which no second has as yet been found. It is true many have found a resting place in the British Museum. But many, *e. g.* the whole of the coins of Col. Stacey have been purchased for Berlin, and of late years St. Petersburgh has been enriched with many rare things from India. Now as India is the largest foreign possession of Her Most Gracious Majesty the Empress of India I beg to be allowed to enter respectfully a protest against this exportation of Indian historical treasures. The Director General of the Archæological Surveys of India has issued an order to the effect that surveyors shall not collect for themselves. This is excellent as far as it goes. I would suggest that tbe Government of India should lay aside a small sum every year, as does the Government of Great Britain and Ireland, for the purchase of coins only. This sum should be distributed amongst the Surveys. The present arangement is that the survey shall be carried on during the next four years. If during this time each surveyor exert himself numismatically, there is a prospect that a good collection may be started even now.

At home the British Museum possesses many duplicates especially in the cabinets of the India office collection. This collection ought of course to have been returned to India. I would suggest that at any rate the duplicates should be. The Museums in India are beginning to be important aids in the matter of education and especially in the matter of historical instruction. Lahore, Madras, Kurrachee and Calcutta are taking steps in the right direction. If the duplicate coins in these museums were sent off to museums not possessing them another important step would be gained. With duplicates from England and duplicates from sister institutions each Indian museum should during the next ten years be on the way to getting a fairly good representative cabinet of coins of the whole of the Empire. Meanwhile electro-types of the rarest coins ought to be supplied by the British Museum to all Indian museums So that after all if a student of Indian History wish to consult one of the sources whence the story of his country has been taken he should be able to study either the originals themselves or exact replicas of the originals. Of course in order that this may be brought to pass some one should be put in charge of the necessary arangements. An imperial officer should be appointed with power enabling him to exchange coins from one provincial museum to another. His chief aim, however, should be to look well to it that the Imperial Museum in Calcutta obtain a cabinet of coins which shall represent every dynasty that has at any time sat upon any throne in any and every province in India. Then he should see that every provincial museum possesses a cabinet representing the dynasties who have ruled in that province, and in adjoining provinces. In each museum lectures should be started on the coins it possesses already.

Buddhist and other legends about Khoten.—*By* BABU SARAT CHANDRA DÁS, C. I. E.

Buddhist (Indian) legends connected with Li-yul.[*]

Buddha (Sakya Muni) after attaining to Nirvana for the cause of all living beings resided in twenty-one mansions.[†] Li-yul is the last of those, though in merit it is superior to all the others. In ancient times when Buddha Kashyapa appeared in this world, Li-yul was called the country of Chandana[‡] where the sacred creed (Budh-

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[*] Li-yul. Li is a Tibetan word meaning kañsa or bell-metal. Yul means a country. The Sanskrit for Li-yul is "Kañsa Desa." This is probably the Ila Varta of Indian cosmogony.

[†] The places or superb mansions which according to the Mahayana school were visited by Buddha Sakya Sinha.

[‡] The earliest intercourse of the Indians with China was through Khoten which they called Chandana and it is very probable that they subsequently extended that designation to China.

"Two letters of Pishabarma, king of Aratan to this emperor (Sung wenti) are preserved in the history of this dynasty. He describes his kingdom as lying in the shadow of the Himalayas whose snows fed the streams that watered it. He ism) was greatly propagated. After Kashyapa had passed away from sufferings (mundane existence) his remains were interred in the chorten* of Gomasalagandha. On account of its sanctity the sage Kharasha and others resided for a long time on the top of the mountain of Li-yul which from that time became a place of pilgrimage. Subsequently when unbelievers persecuted them, the sages soared on high, and fled to other countries; so that on the decline of Buddhism, Li-yul became a lake. After the lapse of a long time Sakya Muni appeared in Arya Varta where he worked for the salvation of all living beings. Before entering into Nirvana he charged the different Sramanas (guardians of Buddhism) with the protection of the Buddhist countries. Li-yul was entrusted to the care of Vaisramana,† Yaksha and others. The teacher himself together with his followers soaring in the sky, visited Li-yul which had turned into a lake. Seated on a lotus high above the present site of Ghumtir Vihara which is situated on the bank of the river Shel Chhale, he blessed it. Rays

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praises China as the most prosperous of kingdoms, and its rulers as the benefactors and civilisers of the world." Edkin's Chinese Buddhism, 92. Referring to the name of China Mr. Edkins has the following note.

"The common Indian name of 'China' written in Chinese Chentan, is here employed. Another orthography found in Buddhist books is Chi-na. It is clear from the use of these characters, that the Indians who translated into Chinese at that early period, did not regard the word 'China' as the name of a dynasty, but as the proper name of the country to which it was applied. This leaves in great uncertainty the usual derivation of the term 'China' from the 'Dzin' dynasty B. C. 250 or that of Ts' in, A. D. 300. The occurrence of the word as the name of a nation in the 'Laws of Manu' supposed to date from some between B. C. 1000 and B. C. 500, with the use of the term 'Sinim' in the "Prophecies of Isaiah," indicate a greater antiquity than either of these dynasties extends to, Some have supposed that the powerful feudatory kingdom, Dzin, that afterwards grew into the dynasty of that name, may have originated the appellation by which the whole country subject to the Chen emperors was known to the Hindus. Dzin occupied the north-western tract now called Shen-si and Kan-su. It was that part of China that would be first reached by traders coming from Kashgar, Samarcand, and Persia. Chen-tan, the other Hindu name of 'China' used in the Buddhist books, may be the Thinae of Ptolemy. When the first Buddhists reached China, the character used for writing the first of these two syllables would be called Tin, and soon afterwards Chin. In Julien's Méthode, &c., its Sanscrit equivalent is Chin. This would be somewhat late. Would it not be better, having traced the term to India, to make that country responsible for its etymology?"

* Chorten (Chaitya), a Buddhist tope or stupa, it is a shrine intended to hold the relics of sanctified persons.

† One of the four guardians of the world and the lord of the Yakshas. His person is white, he sits holding a guitar in his hand. He rules from the eastern part of Sawan.

of light flashed from his person which being thrown back by the Buddhas and Bodhisattwas of the ten quarters, were re-absorbed on the teacher's head and a voice from heaven was heard, saying, "Let there be peace and happiness, Amen." Thereafter the Blessed One made magical demonstrations and prophecies about the spread of Buddhism. He commanded Shariputra to pierce the mountain with his trident and Vaisramana to hurl his javelin into it so that the waters might run out, when they did so, the teacher himself became absorbed in a big image which stopped on the top of Goshirsha hill. On the left side of the temple where now stands a small chorten he stayed seven days. Being asked by Ananda the circumstances of the lake's becoming dry, he said, "After I have entered into Nirvana this place will be called Li-yul and the fort called Wu-then* (Panchavati or Ñaden). A great city will then come into existence. At the time of its being ruled by Raja Grama, an image made of sandal-wood in which the scent of Buddha's person has been absorbed, will come from Aryavarta. Its kings and ministers will build three hundred and sixty viharas for the residence of male and female mendicants of the Mahayana school. Bodhisattwas who will worship the sacred image, monks and nuns and upasakas (lay devotees) who will always reside there will number five hundred. Half of them will be clergy. Bodhisattwas who are not destined† to degradation and the followers of the Mahayana school in general will also reside there. This place will be sacred to the Buddhas of past, present and future times." Then commanding the Sramanas always to protect this country he allotted to them their respective charges. Then the lake became empty and the external symbols of Buddha Kashyapa, the chorten of Gomasala Gandha, Goshirsha Parbata, the walled city of Gewai Shul &c. reappeared.

Tibetan legend about Li-yul.

Two hundred and fifty years after the Nirvana of Buddha, Dharma Asoka the king of Aryavarta after committing many sins took the vow of erecting in Jambudwipa temples and chortens to the number of 84,000. He visited Li-yul where he found the lake dry and the country uninhabited. Coming to the spot where now stands the sacred city of Wuthen (Khoten) he spent one night with his wife, and there she was delivered of a child possessed of good signs. The fortune-tellers told the king that the child was destined to rule the kingdom before his (Asoka's) death. The king out of anger ordered the infant to be thrown away. The mother interceded but as the monarch would not retract the order, the child was cast on the ground. Owing to the merits of the child, there sprang out a teat from the ground, sucking which, it throve and grew up. Being suckled by the teat of the ground he was called Salana. It is said that when the mistress of king Asoka was bathing in a pleasure grove in Magadha, she happened to see Vaisraman, passing through the sky, and when her eyes met his, she conceived this child. At this time Che-he-Wang king of China who was an incarnate Bodhisattwa had got only 999 sons, although he was to have 1000. He now prayed to Vaisramana for another son to make up the number, saying that he would send him to rule over Li-yul which had been touched by Buddha's feet. Vaisramana presented Salana to him and asked him to accept him as the son.

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* Wu-then—(Lúa-lden or Panchavati) was the chief city of Khoten. Wu in Chinese means from or than.

† There are ten stages of Bodhisattwa perfection—those who reach the 8th stage are not affected by any of their karma so as to be subject to damnation. Being free from sin they either remain stationary or go upwards to higher stages—but never come down.

Account of Li-yul (from Tibetan sources).

The Emperor of China Che-he-Wang (che-Hwante) sent one of his sons (Salana) with 10,000 troops in search of Li-yul; proceeding towards the west Salana arrived at Me-kar in Li-yul. Just at that time Yaksha the minister of king Asoka, who was in banishment, came to Li-yul with his parents, his brother and 700 followers in search of lands. When they were encamped above the river Shel-chhale Gongma of Wu-then, two of Salana's servants who had gone there in search of a runaway cow met them. The reason of their coming to Li-yul being known, and also it being a common interest of both to hold it, Salana, Yaksha and their followers agreed to remain as king, minister and subjects in the valley of Wu-then. The parties conferred at a place called Hanguji below Kora. A short time after this, they disagreed as to the division of the country. In the quarrel the gods (Vaisraman and Srideni) interceded. All the country below the river of Wu-then, *i. e.* Shel-chhu Gong-ma, and below Dolla Me-kar and Kamshing were given to Salana and his followers and thenceforward they belonged to the Chinese; and all the lands above the river Shel-chhu Gong-ma were given to Yaksha and his followers which thenceforth belonged to Aryavarta. Thus the country between the two Shel-chhu rivers being owned by the king, minister and subjects both of Aryavarta and China, according to their order and precedence they settled in it and founded cities and towns. The central place where the Chinese and Aryans came in contact with each other being the country of Li, its language became mixed. Anciently in Li the art of written language was taught by Bhikshu Vairochana an incarnation of Manj Ghosha to a shepherd boy by that saint's command. The character and language of Li greatly resembled those of the Aryans but their customs and manners mostly resembled those of China.

Two hundred and fifty-four years after the Nirvaña of Buddha king Salana was born. He became king of Li in the 19th year of his age. Salana and minister Yaksha were the earliest king and minister of Li-yul (231 B. C.). After Salana his son Yeula* became king, and founded the city of Wuthen. Sixty-five years after the foundation of the kingdom of Li by Salana Viyaya Sambhava son of Yeula was born (166 B. C.). In the fifth year of his reign Buddhism was introduced into Li. King Vijaya Sambhava was an incarnation of Maitreya. During his reign Bhiksha Vairachana first taught the art of language to a shepherd boy from which beginning Buddhism gradually made progress. The king founded the vihara of Charma which was the first seat of Buddhism in Li-yul. Again Maitreya having reappeared in king Vijaya Virya, he greatly promoted the cause of Buddhism. He erected the vihara of Ghumatir. A metrical romance of the chhorten of Gomasala Gandha being composed, the king imbiled much faith in the Buddhist creed and built the vihara of Girishwar on the top of Goshirsha.

After his reign, during two generations no viharas were established. Thereafter king Vijayayasa erected the chhortens of Potoya and Masha and another vihara of great sanctity. Vyayayasa had three sons. The eldest named Dondo,† and the second named Dharmananta went to study Buddhism in Aryavarta. The youngest, Vijaya Dharma ruled over the kingdom. Being very warlike and valiant he used to be always fighting, and on account of his delight in bloodshed, he became very sinful. His elder brother Dharmananta after attaining Arhathood reclaimed him from leading a cruel and wicked life and by skilful devices induced him to make confession of his sins. The king erected a vihara on the site where in ancient times the great Muni (Buddha) on his birth as king Chandra Babha gave away his head in charity to Bráhmans. He also built a chhorten at Gyenteshan and a vihara in the grove of Bhybalong. Dondo on his return from Aryavarta met his brother and built the temple of Jamo Kokorang and the vihara of Sangter.

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* This chronology seems to be approximately correct. This was the age of Che-Hwangte, the great Emperor of China, who erected the great wall and was contemporaneous with Asoka the mighty monarch of India. Their empires touched each other.

The legend is evidently a fabrication. The descendants of Salana who adopted Indian names, manners and customs probably did not like to trace their origin from either the Chinese or the Indians. The mother is allowed to be Indian and Vaisramana the divine head of the Yakshas is said to have fallen in love with her. He does not touch her but only looks at her from his ethereal passage, she miraculously conceives and delivers at Wuthen. Salana and his son Yi-ula who also bears a non-Aryan name were both Chinese.

Ye-u-la was the name of the son of Salana. It is probable that Ilavarta the country of a very fair people derived its name from the name of this king.

† This is a Tibetan translation of the names of the princes.

Vijaya Suñha the son of Vijaya Dharma founded the vihara and chhorten of Somna. Subsequently king Vijayakirti built the vihara of Sruno which exists to this day (time of writing the book from which this is compiled), being saved from the ravages of the river by a Naga. His son Vijaya Sangrama at the advice of Arhat Jṇanayaksha built the viharas of Dharmatir and Gheynshan. His son king Vijaya Suñha miraculously visited Maitreya and erected the vihara of Shaserna. After the reign of his son king Vijaya Bala, for six generations no viharas were erected. Then king Vijaya-santrema obtained an image of Buddha from Chugasan which is said to have come from the sky. He built a shrine for this image and a chhorten. At the advice of Arhat Mergude Abhaya Dhanya he built the vihara of Shasannna. After the reign of his son king Vijaya Satu, for four generations no monasteries were built. The king Vijayakirti having been exhorted by a certain *Naga* king founded the vihara of Bhabana. During the reign of this king, Li-yul was conquered by a Tibetan king and made a dependency of Tibet. The king and his son Vijayagram Gupta fled to China—during their absence the prime minister of Li named Ama Chhagumay governed the state in the capacity of regent. During his government the vihara and chhorten of Manadhe were built. On his return from China king Vijayagram Gupta built the vihara of Gyeshidema. Thereafter the Chinese Generals Ser-thise and Ka-these erected the viharas of Maitriya, Bhau (khar) fort and Khe-kwansee. The king erected the great chhorten of Sátona at Tshalmoi-tshed[*] where in ancient times Arya Vairochana had taught first the art of language to a shepherd boy.

The vihara of Bhavana was built in the year when Gar-long-toan[†] the general of king Srang-toan-jampo invaded Li-yul.

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[*] Tshal-moi-tshal. This is a Tibetan word meaning garden of gardens.

[†] This was the great general who was sent as ambassador to the Court of the emperor Thaitsang to negotiate the marriage of princess Wencheng with his sovereign king Srong-tsan, vide, Dr. Bushell's Early History of Tibet "when Tai-

On the site of that chhorten king Vijaya Vahana and a Chinese monk named Balasha erected a monastery. The wives of the kings of the Salana dynasty occasionally followed the example of their husbands and built viharas in order that they might accumulate merit for themselves. The following are some of the principal monasteries of Li-yul: Nuoña, Ossojo, Sserojo, Soyen-ro, Demoja, Kobrojo, Horonjo, Yermono: Khosomno, Guterima, Okono, Kuchye, (Black hole), Chunono, Khyeno, Namobhathong, Anoyono. Counting the viharas, in and outside of the city of Wuthen there were 60 large viharas, 95 of medium size, and 448 temples.

In Dollo and Mikar there were four large viharas and upwards of 100 temples with 124 monks—above Kameshang and below Jili, in the towns of Phuna, Begada, Oku and also in their suburbs there were 23 large viharas, 21 middle-sized viharas, and 62 temples with about 438 monks belonging to the Lekyen and Goi-tsho schools, 39 of the temples contained 8 chhorten in each.

Below the towns Duryamo and Kesheng and above Gyel-kyan and Isarma there were about 15 large viharas besides many chhorten and temples with about 963 monks of both schools.

From the introduction of Buddhism into Li-yul during the reign of king Vijaya Shambhava, the grandson of Salana, up to the present time (the year when the account of Li-yul was recorded) counting the years from the autumn of every year without the intercalary months, there have elapsed 1,253 years. From the time of king Salana there have been 51 generations of kings and one regency.

During the reign of king Vijayakirti in the country called Sangapatana near the vihara of Sangayaprahana there lived a hermit named Sangaya Dhara. One of his pupils seeing a prophecy with the Vinaiti Pandits Chandragarbha and Dharma asked him if it was true.

The prophecy ran thus—

For two thousand years after the Nirvana of Buddha in the country of Li-yul, the reflection of the sacred Dharma and sacred relics will exist. Thereafter the Buddhist creed will decline when the three countries of Li, Shuli, and Anshe will be conquered by China, Tibet

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tsang consented to give in marriage the princess Wen Ching—it was Lu-tang-tsan (Lon-Tong-tsan) who was sent by Tsanpá to receive her.

This was evidently king Srong-tsan Gampo. During the reign of his grandson, the Tibetans extended their arms further west, *vide* Dr. Bushell's early history of Tibet. "In the first year Hsein Shing (670 A. D.) in the fourth month, they (the Tibetans) invaded and destroyed eighteen of the subject Chaon (outside frontier) and led the people of Yu-tin (Khoten) to capture the Chin-tsa-Pohnan Chêng. Thereupon the four Military Governments of Anhsi were all given up."

and So Chyi Dugu and Hor. Then a Bodhisattwa being born as king of the Dongma (Tibet) Buddhism will rise in Tibet where viharas and chhorten will be erected, two classes of clergy will be introduced and by degrees kings and ministers will be converted. Professors and teachers of Buddhism from other countries, and many excellent precepts (scriptures) will be introduced. The country of Li will then pass under the rule of that king of Tibet whose descendants to the seventh generation will be devoted to the immaculate creed.

In the country of Li, about the time of the decline of Buddhism its young king disliking the sacred creed expelled the Buddhist clergy and by degrees drove away those of the temples of Tsharma, Bong, Mekar, Kongnu &c. The expelled clergy with their sacred books and religious articles fled towards the country of Dongma (Tibet) and proceeding slowly as if guided by a laden yak arrived at a place called Tshal in Tibet; their elders were taken to the king of Dongma whose wife was a Chinese princess; she extended her patronage to them and inquiring if there were more monks in Li-yul she sent for those that were still there. These men brought with them many pandits from Anshe, Shuli,[*] Brusha (Dusha) and Kashmir. These Buddhists conducted religious services in the viharas of Tibet for three years, after which the princess[†] died of small-pox. At that time many people died of that disease. The ministers and officers of Tibet then holding a conference unanimously declared against permitting the Buddhist clergymen to remain in Tibet. They attributed this dire calamity to these monks who being expelled from Lhodal (Nepal) had settled in Tibet, the Bandes[‡] from Aryavarta and the Tibetan monks were therefore compelled to fly towards the west to the country of Maha Gandhara,[§] whither they carried all their religious books, &c. These Buddhist clergy of Jambu Dwipa were cordially received by the king of Maha Gandhara who supported them for a period of two years. In the meantime the king died leaving two sons who were Buddhists. Some ambitious Bandes taking advantage of the reigning king's devotion to them killed him and usurped the throne. The king's younger brother with the help of his ministers and subjects killed the Bathdi usurpers and forced all the Buddhists to leave Maha Gandhara. They proceeded towards the country of Ke-u-sha where they found shelter. "The religion (Buddhism) had now long been established in Nepal and Independent Tartary, as the travels of the patriarchs indicate. It had also extended itself throughout India and Ceylon, and the persecution of the Bráhmans instigated partly by controversal feeling and more by a desire to increase their caste influence had not yet commenced. Long before this, it is stated that in B. C. 217, Indians had arrived at the capital of China in Shen-si in order to propagate their religion. Remusat, after mentioning this in the Foe-koue-ki, adds that, towards the year B. C. 122 a warlike expedition of the Chinese led them to Hieow-thou a country beyond Yarkand. Here a golden statue was taken and brought to the emperor. The Chinese author states that this was the origin of the statues of Buddha that were afterwards in use" "Edkin," Chinese Buddhism, p. 88.

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[*] Anshe and Shuli—Dr. Bushell's Early History of Tibet. After its (Pehuson) conquest by the Chinese in 648 A. D., it was made the seat of a governor generally styled the Anhsi Trehipo, who ruled also over Yutim (Khoten). Shule (Kashgar) and Luiyeh, a city on the southern bank of the river of the same name &c.

[†] This was evidently princess Chin cheng mother of king Thi-srong-deu-tsan, who died in the year 741 A. D.

[‡] Bandes, (Sanscrit, Bandaya) one worthy of reverence—the common designation by which the monks of Nepal, Kashmir &c. were known in Tibet.

[§] Maha Gandhara—great Gandhara or the modern Candahar and Cabul.

"Kumarajiva, was brought to China from K'u-tsi a kingdom in Tibet, east of the Ts'ung-ling mountains. The king of Ts'in had sent an army to invade that country, with directions not to return without the Indian whose fame had spread among all the neighbouring nations. The former translations of the Buddhist sacred books were to a great extent erroneous. To produce them in a form more accurate, and complete was the task undertaken by the learned Buddhist just mentioned, (Kumarajiva), at the desire of the king. More than 800 priests were called to assist, and the king, himself, an ardent disciple of the new faith was present at the conference, holding the old copies in his hand as the work of correction proceeded. More than 300 volumes were thus prepared," l. c. p. 90.

Extract from "Dsam-ling Gyeshe" by Tsanpo Noman Khan of Amdo.

The country called Thokar by the Tibetans and vulgarly Malaya Phokhar or Little Phokhar is identified by some with Li-yul. The description given in history of Chandan Choui the famous image of Buddha in China and the accounts given in the travels of Thangssin tally with some accounts mentioned in the Kálachakra that Li-yul was situated somewhere in the north of Tibet. Many Tibetan authors in their description of Li-yul have confounded its position. Some say Li-yul is in Mongolia, some say Li-yul is a province of Tibet; according to others Li is Pal-yul, (Nepal).

This country of Li is divided into eight parts of which Kasikara is the chief. The fort of Yamkasar &c., is included in it. There are many Hor and Chinese possessions in Li-yul. To the east of Khokan and Angiyan, &c., there is a chain of lofty snowy mountains, to the east of which lies the country of Sulanu Okshi now vulgarly called Oosi, where is Arbu Parvata or the wonderful mountain. Its rocks contain curious figures and Thangssin mentions the existence of some (Gagnom) Buddhist ascetics who had attained the state of suspended animation. Some among them were known to have lived many ages.

To the south-east of it close to the snowy mountains lies the province of Kasikara (Kashgar), the capital city of which is Kasikara with the fort of Yamkasar.

These places were visited by the Chinese traveller Thangssin, who found them filled with a Buddhist population and with religious establishments. Subsequently the country was overrun by the Golog Lalo (Muhammadans) who demolished Buddhism and converted the people to Muhammadanism. During the great dispute between the Sakyapa and Digumpa schools, the Kasikar in the strife, troops and generals took part, and are said to have been all killed. Now-a-days a Chinese frontier officer holds it.

To the south-east of Kasikara is the large province of Yarkhan the Sanskrit name of which is Arghan, there is a remarkable mineral spring in Arghan well-known by the name of Bula. There are also mines of precious stones besides that remarkable stone called *yangti* or jade.

The river Sita (White River) one of the four great rivers mentioned in the sacred books, issuing from the bright glacial slopes of the Himavat Parvata, flows through this country towards lake Mansorowara. Sita is also called Arghan as if it were the water of ablution for gods, whence the country derives its name. The water of the Sita is of a milky white colour. Thangssin calls this country by the name of Sukakai. To the south of Yarkhan there is a desert which having crossed, we arrive at the country called Gosthan or place of virtue now vulgarly called Khothan or (Khoten) which contains the mountain of Langri (Goshirsha) mentioned in the religious work called Langri Lungtan. There formerly existed the great chhorten (chaitya) Gomasala Ganda and many Buddhist temples and viharas, but after the country was overrun by Muhammadans, those were demolished. The Muhammadans of Khotan now designate Langri by the name Gorusheshi, evidently a corrupt form of the name of Gosirsha or cow's head. To the south-east of Khotan and Yarkhan lies the Ñahri province of Tibet and Ladak. On account of the extensive barren plains and lofty snowy ranges which intervene between Khotan and Ladak, there is great difficulty of communication. To the east of Khotan there is a vast sandy desert and also a river of which mention is made in

Thangssin's travels. Lamas Redama and Manlingpa and others confound this river with the head waters of the Machhu (Hoangho). It is called Gasheshi. Then if one travels eastward he arrives at a place called Puan-khar. The vast arid and sandy regions lying on the north of Thokar, Li-yul, China, Kooli (Corea) were designated Sukatana (dry lands) by the ancient Indians. To the north-east of Kasikara lies the province of Illi and to the south not at a great distance from it, lies Akusu (kupir) which Thangssin designated by the name of Bharo, not far from which is situated Tasu tasa. To the east of Akasu lies Guchhe of Li-yul, now called Khu-chhu or Khuthe. These were anciently places of Buddhist pilgrimage. It was from Khuthe that the image of Chaudana Choui of China was carried to the court of the emperor of Ts'in. To the east of Yarkhan and Khuthe lies the Lalo country called Kerwashar or Kharashar containing a fort, at some distance from which are the towns of Athashara, Karlo, Haimthu, The-chin, Talon, &c., inhabited by the Gokar people. To some distance from these places is situated the winter residence of Thorkod Khan. To the east of these lie the two provinces of Thurphan and Eshwa now called Eshora which are known by the general name of Eeshi-thur-phan. In Eshora there are numerous images of Arhats and other Indian saints, as well as the tombs and birth places of many Arhats of ancient time. To the north of Thurphan lie Danemig &c., not far from which to the east lies Hwamil called Khomal (probably Komal of Marco Polo), to the east of which lies a portion of the Great Desert. After crossing the desert and some mountains one reaches the western extremity of the Great Wall. The whole of this vast country between Samarkhan and Hwamil, and also including Shachu, Suchon, Kanchan, Lanchan, Liyi, Oorumussthar, Bakatu was included in the kingdom of Li-yul. The people of Li-yul were anciently a well-to-do people and their number was immense. In Li-yul the heat in summer and the cold in winter are very great. The country is rainless, and the people draw water (hardly enough for their wants) from glacial streams and from wells. They grow wheat, rice, peas, arhar, gram, different kinds of peaches (white and black) kakati, kachtya, karakashe, holpe, chipaka, apricots and a kind of grapes called bhasur, as well as different kinds of water-melons suchás, turtinga, and kharlinga. They are martial, stalwart, very strong, and straightforward.

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Part II.—NATURAL SCIENCE.

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I.—*On a Uredine affecting the Himalayan Spruce-fir* (Abies smithiana, *Forbes*).—*By* SURGEON A. BARCLAY, M. B., *Bengal Medical Service.*

[Received December 20th ;—Read January 6th, 1886.]

(With Plates I., II., and III.)

During a short holiday spent in the interior of the Western Himalayas beyond Simla during May, I observed many fir trees (*Abies smithiana*) attacked by a conspicuous parasite which, upon examination, proved to be a uredine—and apparently a new one, for its characters do not correspond with those of any other that I am acquainted with occurring on the *Coniferae.* It occurred in great abundance throughout the forests of the Sutlej valley at elevations of from 7,000 to 10,000 feet. I have not been able to obtain any evidence of its extension eastwards along the Himalayas,* but in a westerly direction Colonel Collett informs me that he has met with it in the Kuram Valley of Afghánistán. He unfortunately did not preserve any specimens, but, from his description of the affection as he saw it there, I think there can be little doubt about its identity.

I have no data to enable me accurately to limit the season during which the parasite continues to be outwardly recognisable. It was met with in various stages of development throughout May, and I believe it disappears entirely during the rains in July. Whether the two forms in which it was met with, and which I shall for convenience describe as the æcidial and uredinal, do really stand to one another in this relationship it is impossible to determine without experimental evidence, and I have had no opportunities for performing the necessary experiments. From other circumstances, however, the existence of such relationship appears to be probable. I could find no trace of any teleutosporic form for this parasite either on the same or on any other host. Although I examined many uredo pustules with care, I could never detect any separate form of persistent spore among them. This, however, may have been due to the fact that all the specimens at my disposal for investigation were gathered during May, and, if teleutospores are formed at all in the uredo beds, it is quite possible and probable that they are developed later. The question as to whether the mycelium in either form is perennial requires further investigation. I am mainly influenced in regarding the mycelium in both instances as not perennial by the fact that the affection in both cases is confined entirely to shoots of the present season's growth, as will be more fully explained below, and that the whole of the affected shoot withers and dries up completely when the fungus has completed its existence (fig. 20).

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* See note at end of paper.

In describing these two forms of the affection, it will be convenient in the first place to give a short account of the general naked eye appearances of each, and then to proceed with the description of their minute characters.

General Appearance of the Æcidial Affection.—When fully developed the affection is very conspicuous: large masses of tissue are affected, and the pale yellow colour of these parts contrasts strikingly with the surrounding green foliage. The fungus always attacks a young terminal shoot, and the distortion caused, partly a real and partly a pseudo-hypertrophy, renders it still more conspicuous. Moreover, the affected part assumes a drooping habit due apparently to the weakening of the texture of the stem by the mycelium which largely pervades its whole tissue.

The general appearance of a young affected shoot is well shown in fig. 17. In this stage, the affected needles lie against one another, embracing the stem instead of standing out from it, as the natural needles are seen to do in the same figure. The stem and needles are already in this young stage considerably thickened. The whole of the affected part has a uniformly pale yellow colour. Conspicuous as it already is, it becomes much more so when further advanced. The thickening of the needles and stem increases greatly. The dimensions of the transverse section of a normal needle on an average are about 1 m.m. × 0·76 m.m., but in a fully affected one these become 1·43 m.m. × 1·10 m.m. The needles now curve outwards with their convexities towards the stem, and the æcidia are borne usually in two more or less parallel rows on the upper curved surfaces (fig. 2).

The length of a fully affected shoot varies considerably, from an inch or two to 12 inches or more. In one specimen, a terminal affected shoot measured 9 inches in length, whilst two lateral shoots, also affected and springing from its base, measured 6½ and 5 inches respectively (fig. 1). The measurements of another very fine specimen, gathered from a branch near the summit of a young tree about 15 feet high, were as follows. The small branch upon which the affected shoots occurred sprang immediately from a main lateral branch. This branch contained 15 shoots in all. Their lengths beginning from the base were as follows:—the first 1 inch, the second 1½ inches, the third 2 inches, the fourth and fifth 3 inches, and the sixth 3½ inches. So far all the shoots were quite free of the affection, but the seventh was affected and measured 5 inches, the eighth unaffected 4½ inches, the ninth affected 9 inches, the tenth unaffected 5½ inches, the eleventh affected 8 inches, the twelfth unaffected 6½ inches, and the fifteenth and last affected 12 inches. Thus the affected shoots were on the whole considerably longer than the unaffected. I cannot explain the curious phenomenon here displayed of alternate shoots only becoming affected and with such regularity. The phenomenon becomes even more striking when it is observed that not a single needle on an affected shoot escapes invasion, whilst, on the contrary, no single needle on one of the intervening unaffected shoots, nor any one on the main stem, even in the internodes between affected shoots, is ever attacked in any degree. To all outward appearance, the disease is confined absolutely to shoots of the present season's growth and does not extend to the branch of which it is an immediate shoot, and which was of the preceding season's growth.

As regards the general characters and appearance of the affected needles, they are, as already stated, considerably thickened and curved (fig. 2). The distal end of the needle is densely studded with spermagonia, which appear as minute dark points uniformly distributed all around it. Towards the middle half these become much less numerous, and, as the base is approached, they are few and confined to the inferior surface of the needle. The spermagonia are developed considerably earlier than the æcidia. The general appearance of the æcidia is illustrated in figs. 2 & 3. They are borne mainly on the upper surface of the spine in two parallel rows. In rare cases, they burst through the inferior surface, but such æcidia are isolated and smaller than those on the upper surface (fig. 2 *a*). While still unopened, the æcidium is of a pale rose colour, but the free spores in mass are orange-red, whilst the peridium is colourless. The æcidia are first developed on the lowest needles of an affected shoot, whilst in the upper ones they appear in succession from below upwards. They are generally more numerous on the lower than on the upper needles of a shoot. The still unopened æcidia protrude through clean rents in the epidermis, and, when ripe, the peridium bursts with an irregular frayed margin (figs. 3 & 4).

General Appearance of Uredinal Affection.—The uredinal form is much more frequently met with than the æcidial just described. Its general appearance is shown in fig. 19, which represents a fully developed specimen. This specimen had been preserved for a few days in brine, and the needles were swollen somewhat unnaturally. The dimensions of a fully affected needle are 1·60 × 1·43 m.m., thus exceeding those of the æcidial affections. This form occurs sometimes on the same host which bears the æcidial form, but more frequently on a separate tree. Presuming that the uredinal form is genetically related to the æcidial, this would not be surprising, since æcidial fructification is usually less frequently developed than the uredinal. Whenever the æcidial form is met with, it is rarely unaccompanied by the uredinal on the same host. In their general appearances alone, the two affections, when fully developed, differ so much as to enable a distinction to be made between them at a glance (compare figs. 18 & 19). The densely aggregated needles of the uredinal form contrast strikingly with the opener habit in the æcidial form. But, in addition to this difference, the uredinal form is distinguishable by its orange-red colour. It resembles the æcidial affection in always being confined to shoots of the present season's growth, but the affected shoots are always small and never attain the lengths so often seen in the æcidial form. Indeed, the shoots affected by the uredinal form of the parasite appear to be stunted in growth, since no affected shoot ever measures more than 2 inches in length, whilst in the measurements of unaffected shoots (given above in contrasting them with neighbouring shoots affected by the æcidial form) many exceeded this length. The aggregation of the needles also points to a suppression in the long growth of the stem. It is probable, therefore, that, whilst the æcidial parasite stimulates growth in length of the stem, the uredinal one represses it. A specimen gathered from the same host which bore the æcidial affection, and whose measurements were first given above, measured only 2 inches in length though fully developed. The separate needles here also curl up considerably, contrasting strikingly with the neighbouring erect unaffected needles (fig. 19). Every needle of the affected shoot is involved.

When mature, the needles are clothed densely with a homogeneous orange-red layer of spores forming elevated beds. These masses of spores break out first in isolated spots along the lateral grooves on the upper surface of the needle. Having once broken through the epidermis, they extend in area with great rapidity and soon coalesce. Ultimately, they form two longitudinal beds on the upper surface separated by a narrow groove in the middle line. Laterally, they creep round and involve the lower surface to some extent. After the spores have burst through the upper surface and have made some progress towards coalescence, isolated crops appear in two more or less parallel lines on the lower surface of the needle. These ultimately form oval beds which do not tend to coalesce as on the upper surface. When quite young, this uredinal form emits a disagreeable and offensive odour which is absent from the æcidial form.

Microscopic Characters. (a) *Normal Structure of Needle.*—The normal needle is flattened laterally, and a transverse section is broadly quadrilateral (fig. 21). The extreme length of such a section about the middle of the needle is about 1·09 m.m. and the breadth 0·76 m.m. The two sides forming the upper angle are shorter than the two lower sides, and include a larger angle. On either side, near the surface and about midway between the upper and lower angles, are two resin canals, and in the centre is a vascular bundle measuring 0·236 m.m. in diameter. The needle is covered externally by a layer of epidermis cells whose continuity is interrupted only by the interposition of stomata. In each transverse section, generally six stomata may be seen, two on each of the shorter sides and one on each of the longer ones. Immediately under the epidermis, there is a layer of thick-walled hypodermal cells. This consists of a single row of cells, excepting at the lower angle, where it is double. It is interrupted at the stomata and at the resin canals. These canals are bounded by two layers of cells; the external larger and thicker-walled than the internal. The canals measure about 0·076 m. m. in diameter. The centre of the needle is occupied by the vascular bundle, which in transverse sections is seen to be limited by a circle of oval cells forming an endodermic sheath. Between these sheath cells and the hypoderma, lie large thin-walled parenchyma cells (the mesophyll) with numerous large air spaces. These parenchyma cells, as seen in transverse section, resemble, to some extent, the palisade cells of ordinary leaves and are arranged radially; but this general radial symmetry is interrupted by a secondary crescentic system around each of the resin canals. In depth, these cells vary from two to four cells. They are filled with chlorophyll corpuscles, starch grains, and protein bodies, the relative amounts varying with the season and age of the needles. The sheath cells are considerably longer than they are broad. They do not contain chlorophyll but often large starch grains. Within the endodermic sheath are first thin-walled parenchyma cells, with sinuous outlines opposite the xylem, but more cubical opposite the phlœm. These cells have large bordered pits. The xylem is towards the upper side and the phlœm below it. The xylem is more or less distinctly divided into two lateral halves by two to three or more large thick-walled sclerenchymatous cells. The phlœm is more distinctly divided into two lateral halves. Beyond the phlœm is a group of from three to seven large thick-walled sclerenchyma cells, and, in the centre of this, immediately adjoining the phlœm, one large empty thin-walled cell may always be seen.

(b) *Microscopic Characters of the Æcidial Fungus.*—The general appearance of the invaded tissue of a needle in a transverse section is well shown in fig. 22, and, if this be compared with fig. 21 (exhibiting a transverse section of a normal needle), the general deviations in the structure of the former from the normal condition are at once apparent. The parenchyma cells are larger and rounder than in the normal condition. They measure from 0·177 or 0·101 m.m. in length by 0·058 in width, whilst in the normal needle these dimensions are from 0·093 or 0·071 by 0·035 m. m. The radial arrangement of these cells is also entirely lost, and no vestige of the resin canals remains. The most striking change, however, produced in the invaded tissue is the separation or dislocation of the parenchyma cells from one another by the mycelium. In every transverse or longitudinal section of a needle, it is easy to trace the course of the mycelial filaments for a short distance in the parenchymatous tissue (figs. 5 & 6). In these figures, it will be observed that, though both are magnified equally, the hyphæ of the one are greater in diameter than those of the other. The cause of this difference is due to their different treatment and mounting. Fig. 6 represents a section which was stained in picrocarmine and immediately mounted in Farrant's gum solution, whilst the section represented in fig. 5 was stained with vesuvin, then immersed in absolute alcohol, cleared in clove oil, and mounted in canada balsam. I had no opportunity of examining the tissues when they were quite fresh, and the following measurements of the diameter of the hyphæ are therefore subject to correction. The diameter of the filaments illustrated in fig. 6 (mounted in gum) was on an average 4·7μ, whilst the average diameter of those represented in fig. 5 was 3·1μ. The mean of these two measurements would probably very nearly approach a correct measurement of the fresh filaments, for, whilst the former measurement may be a little excessive from absorption of water, the latter is probably reduced by immersion in alcohol. In many places, the mycelial filaments may be seen in parallel lines closely applied to the external surfaces of the parenchyma cells. The main mass of the mycelium, therefore, lies in the parenchymatous tissue, that is, between the hypodermal cells and the endodermic sheath surrounding the central wood bundle. A few filaments may be seen insinuated between the hypodermal cells and reaching the epidermis cells. The extension of the mycelium inwards is largely and conspicuously arrested at the endodermic sheath. Some filaments do, however, pass between the cells of this sheath and may be traced among the parenchyma cells. A very few may be traced in the phlœm, but none in the xylem. A special aggregation of filaments occurs between the phlœm and the cells of the sheath, entirely replacing the central sclerenchyma cells.

The minute structure of the mycelial filaments does not present any special characteristics (fig. 9): they are septate and branched. While coursing through the parenchyma, they are not specially convoluted, but become very much so at the bases of the æcidia and spermagonia. A few haustoria occur in the cells of the parenchyma: they are of the branched type and by no means numerous: as the mycelial filaments are so closely applied to the cell walls, appearing as if cemented to them, there would appear to be little necessity for haustoria.

My specimens were unfortunately not favourable for the investigation of the course of the mycelium in the stem. The mycelial filaments were, however, seen to ramify abundantly both in the cortical tissue and also among the pith cells. The circle of vascular tissue was frequently found to be broken in outline in order to allow of strands of the filaments entering. I was unable to detect any actually between the wood cells. The filaments here presented the same characters as those described above.

Spermagonia.—These, as already stated, occur in great numbers; they are deeply set with their bases beneath the hypoderma, and measure about 0·139 m. m. in length and breadth. The conical neck protrudes 45μ above the level of epidermis (fig. 12). They are of the usual structure and require no description. The mycelium at their bases forms densely convoluted masses which thrust the epidermis and hypodermal cells widely apart. The spermatia are very minute oval bodies (fig. 10).

Æcidiospores.—By reflected light the æcidiospores are pale yellow. They are long irregularly oval bodies densely beset externally with minute spines or tubercles. Many of them are rounder at one extremity than at the other and some are flattened and curved (fig. 7). The dimensions of the dry spores were on an average 38μ by 16μ. These measurements were on the whole very uniformly maintained. After the spores had been moistened with water for a few minutes, their average length became 44μ and their average breadth 21μ. The epispore is thick, measuring about 2·1μ. Seen in optic section, the epispore appears to be coarsely radially striated, an effect due probably to the overhanging and underlying processes on the surface. The endospore appears to consist of a fine homogeneous membrane, but is ill-defined. The contents are finely granular and yellow (fig. 7).

The spores are given off serially in rows from the hymenium, a small intercalary cell separating successive spores (fig. 8.) Traced from without inwards each successive spore becomes smaller, until at last no distinction can be made between spore and intercalary cell, and these merge gradually into the round basidial cells forming the floor of the hymenium.

The peridium is very resistant and consists of two layers of cells which are considerably larger than the spores (fig. 16).

(c) *Microscopic Characters of the Uredinal Fungus.*—The general distribution of the mycelium in the tissue of the needle is shown in figs. 23 and 25, which represent transverse sections. Masses of mycelial filaments occur between the cells of the parenchymatous tissue. The dislocation of the cells by the mycelium is much more uniform and symmetrical than in the case of the æcidial affection, where special aggregations are apt to occur at certain places. The filaments in this form are also much more convoluted. Both in transverse and longitudinal sections the masses of mycelium present the appearance of confused more or less circular outlines resembling a pseudoparenchyma. This appearance is due to the extreme convolution of the filaments and to their frequent branching (fig. 14). The majority of the hyphæ have a greater diameter than those of the æcidial form; but they vary in this respect greatly. Most of the hyphæ measure about 8μ in breadth, but some are to be seen of half that size (fig. 13, *a* & *b*.)

In this form, as in the last, the great mass of the mycelium is confined to the parenchymatous tissue. The arrest of the filaments at the sheath enclosing the central wood bundle is very abrupt, more so even than in the æcidial form, for the continuity of the cells is scarcely at all broken (fig. 25). Some filaments, however, do pass through and may be traced both between the parenchymatous cells and to a lesser extent within the phlœm. In this form, also, the central sclerenchyma cells are replaced by a mass of convoluted mycelium. In every transverse section, the single large empty cell noted in the description of the normal needle may be seen between this mass of mycelium and the phlœm. Elsewhere within the central bundle, the hyphæ are less numerous and arranged in a more or less scalariform manner. In this uredinal form, the mycelial filaments do not closely encase the parenchyma cells, as they were shown to do in the æcidial form, and haustoria are numerous. They are all of the branched type: after penetrating the cell the hypha forms three or more apical branches (fig. 11). They are most numerous in the outer parenchymatous cells and chiefly in the most external ones; but they are also to be seen within the cells of the sheath and in the parenchyma cells immediately under these.

Uredo-spores.—As already stated, four patches of spore extrusion may be seen in every transverse section of a fully affected needle (fig. 23), the two larger ones being superior. In such transverse sections, it will be observed that the proportion of the circumference involved in spore formation is very large: about $\frac{5}{12}$ths of the circumference being thus involved. The epidermal layer generally ends abruptly at some distance from the spore bed (fig. 23). There must be a considerable loss of epidermis involved in this sporing process, for the circumference of a normal needle at its middle is to so much of the circumference of an affected needle as is still covered with epidermis as 13·5 to 9·0. As regards the hypertrophy of the needles affected, it may be noted that, as the circumference of the transverse section of an affected needle at its middle was 26 units, whilst that of a normal needle at its middle was 13, the area of the former is four times that of the latter. But, as I have already stated, the specimens were not examined until they had been some days in brine, which seems to have swollen them to some slight extent.

At the bases of these spore beds, the hyphæ form as usual densely convoluted masses (fig. 25). The basidial cells composing the bases of the spore beds form a more or less irregular line of cells containing orange-red oil globules. These oil globules are more numerous in the more superficial parts. The whole thickness of the orange coloured bed is about 0·127 m. m. The basal cells which arise directly from the mycelium are large, nucleated, and of various sizes and shapes: the diameter of an average-sized cell was found to be 16μ (fig. 15 *a*). These cells may be stained with carmine though not brilliantly: the rest of the fungal elements do not take the stain at all. By division a row of such cells are formed (fig. 15 *b*.) The end cell of such a row throws out a finger like protrusion (fig. 15 *c*) from which the spores are separated by transverse septation. The spores (fig. 15 *d*) are spherical with their walls destitute of any surface markings. Their contents are granular and of an orange-red colour. The moistened spores measured on an average 9·5μ in diameter.

Such then is a very imperfect account of one of the most curious and striking of the many forms of Uredineæ which occur on the Himalayas. The fungus was first met with in May 1884, and the above account of it written immediately afterwards; but its publication was deferred in the hope that further opportunities might have been afforded me of investigating its life history. This hope I have now reluctantly abandoned, as my official engagements have not allowed me another opportunity of visiting the forests in which it occurs. The above description of its morphological characters in one stage of its existence may, however, prove of some interest and may attract the attention of others with greater opportunities and leisure than I have of following its developmental history, and is therefore published as it stands. A continued study of it is much to be desired, if only from an economic point of view, for the affection must prove very destructive to these valuable timber trees. Apart from the diversion of nutriment it must occasion, the habit it has of attacking new growing shoots and so completely involving them as to destroy them must be most injurious to these trees. I have on several occasions seen young trees (seedlings) not only with their terminal shoots involved by it, but also with many of their lateral shoots attacked at the same time.

Note.—After I had completed this paper I chanced to read, in an Appendix (B) to Hooker's "Himalayan Journals," published in 1854, of the occurrence in the Sikhim Himalayas of what may prove to be the same fungus though in some respects the description given of it does not agree with the characters of the form I have above described. It is there stated:—"A very fine Æcidium also infests the fir tree (*Abies smithiana*) a figure of which has been given in the 'Gardener's Chronicle' 1852, p. 627, under the name *Æcidium Thomsoni*. This is allied to the Hexenbesen of the German forests but is a finer species and quite distinct." I have unfortunately not been able to refer directly to this paper, but am indebted to the kindness of a friend for the following *résumé* of it. The fungus was gathered by Dr. Thomson at an elevation of 8,000 feet in the Northern Himalayas on *Abies smithiana*. The affected leaves are reduced in length nearly one half and curved. The whole upper surface is occupied by one or more large, elevated, more or less elongated sori sometimes disposed in two rows "which must give the diseased tree a very strange appearance and at length prove fatal. The spores are greatly elongated often exceeding $\frac{1}{800}''$ in length. They were found to be mixed with mucedinous filaments some of which were ready to fructify." These were thought to be extraneous and to belong probably to some *Penicillium*. Dried specimens like other allied parasites had a smell of violets. The paper is very short, and the data given are not sufficient to allow of any decision being come to regarding the identity of the fungus with the form above described.

EXPLANATION OF THE PLATES.

PLATE I.

1. Outline sketch, natural size, of three affected shoots (æcidium).

2. Needle showing fully developed æcidial fructification, about twice the natural size: æcidia in two rows on upper surface, excepting one at *a* on the lower surface.

3. Young æcidium emerging through a rent in the epidermis, with two spermagonia—slightly magnified.

4. Showing mode in which pseudoperidium bursts: slightly magnified.

5. Matting of mycelial filaments on surface of a parenchyma cell × 250. Transverse section.

6. The same × 250. Longitudinal section.

7. Æcidiospore × 580.

8. Æcidiospores with intercalary cells towards base of a series × 450.

9. Fragments of hyphæ in an air space × 450.

10. Spermatia × 580.

11. Haustorium in transverse section within a parenchyma cell × 250 (uredinal affection).

PLATE II.

12. Spermagonium: transverse section × 250.

13. *a*. Portions of hyphæ from a longitudinal section of needle affected with uredinal fungus × 250. *b*. The same × 580.

14. Convoluted mass of mycelium between parenchyma cells (uredo) × 430. Transverse section.

15. *a*. Basal cubical cells with nuclei (nucleus dividing in one which springs directly from a hypha) × 580. *b*. Round basal cells in series × 580. *c*. Basal cells with finger-like protrusions preparatory to formation of spores × 580. *d*. Free uredo-spores × 580.

16. Peridial cells × 340.

PLATE III (Photographs).

17. General appearance of young shoots in an early stage of infection by the æcidial fungus, before the pustules have protruded through the epidermis.

18. The same when the fungus is fully developed.

19. General appearance of a shoot attacked by the uredinal fungus: fully developed.

20. Appearance of withered and dried up shoot after the death of the fungus.

(N. B. The four preceding figures about ⅔ natural size.)

21. Transverse section of normal needle of *Abies smithiana*.

22. Transverse section of needle affected by æcidial fungus (the peridium with the enclosed æcidiospores has accidentally become detached).

23. Transverse section of needle affected by uredinal fungus showing four beds of spores.

24. Transverse section of needle affected by *Chrysomyza abietis* (?) introduced for comparison with Figs. 22 and 23 as practically normal in all respects excepting the protruding fructification.

(N. B. The three preceding figures all magnified to the same extent.)

25. Transverse section of needle affected with uredinal fungus more highly magnified than Fig. 23 and illustrating several points referred to in the text; more especially the dislocation of the parenchyma cells and the comparatively undisturbed condition of the tissues within the endodermal sheath.

II.—*Notes on Indian* Rhynchota. No. 5.—*By* E. T. Atkinson, B. A., President.

[Received August 11th;—Read November 4th, 1885.]

Subfamily EURYBRACHYDINA, Stål.

Eurybrachydida, Stål, Hem. Afric. iv, p. 129 (1866): *Eurybrachydina*, Ofvers. K. V.-A. Förh. p. 753 (1870).

Anal area of wings very rarely reticulate, when so, clypeus convex without lateral ridges: last tibiæ without a mobile spur at the apex. Frons broad, transverse or almost equally long and broad, amplified on both sides in a distinct angle: anterior feet compressed, more or less dilated: anal area of wings sometimes reticulated *(Stål)*.

Stål distributes the genera included in this subfamily into two great groups:—

(1) those in which the eyes beneath are spinose.

(2) those in which the eyes beneath are unarmed.

a. Genera furnished with eyes spinose beneath.

I. Wings less ample, not or scarcely broader than the tegmina: head very broad; antennæ briefly cylindrical; eyes beneath very distinctly spinose; clavus very broad at the apex.

A. Head very slightly prominulous before the eyes; genæ narrower; frons scarcely or only a little broader than the thorax; last pair of tibiæ 5-spinose:—*Eurybrachys*, Guérin.

B. Head more prominulous before the eyes; genæ broader; frons distinctly broader than the thorax; vertex scarcely or only a little shorter than the thorax; last pair of tibiæ 6-spinose:—*Messena*, Stål.

II. Wings ample, broader than the tegmina.

A. Vertex distinctly sinuate at the base: lateral angles of frons much produced; antennæ briefly cylindrical; clavus broad at the apex, two longitudinal veins separated through their whole length: median longitudinal area of wings dilated, furnished almost entirely with transverse veins; last pair of tibiæ 6-spinose:—*Thessitus*, Walker.

B. Vertex very slightly sinuate at the base or truncated: lateral angles of frons somewhat straight, less produced than in *Thessitus*, Walker: clavus narrowly open at the apex, the longitudinal veins united nearly in the middle; wings without a dilated area.

a. Head hardly broader than the thorax, vertex truncated at the base; second joint of the antennæ very briefly subcylindrical; last pair of tibiæ 5-spinose:—*Loxocephala*, Schaum.

b. Head narrower than the thorax, vertex subsinuate at the base; second joint of the antennæ subglobose: last pair of tibiæ normally 4-spinose:—*Nesis*, Stål.

b. Genera furnished with eyes unarmed beneath and clavus closed at the apex, somewhat acute.

1 (2). Last pair of tibiæ usually 6-spinose; scutellum longer by half than the thorax: antennæ short, second joint subglobose:—*Frutis*, Stål:—type *F. pulchra*, Gray.

2 (1). Last pair of tibiæ normally 3-spinose.

3 (8). Frons transverse, angulated on both sides.

4 (7). Thorax and scutellum together distinctly shorter than the breadth.

5 (5). Antennæ short, not extending beyond the eyes:—*Olonia*, Stål:—*O. apicalis*, Walker, from Australia.

6 (5). Antennæ cylindrical, longer, extending beyond the eyes, tegmina narrowed towards the apex:—*Dardus*, Stål:—*D. bufo*, Walker, from Australia.

7 (4). Thorax and scutellum together equally long and broad: antennæ short:—*Platybrachys*, Stål:—*P. leucostigma*, Walker, from Australia.

8 (3). Frons scarcely broader than long, roundly-amplified on both sides; lateral angles of vertex ascending: antennæ subcylindrical, long, extending much beyond the eyes; tegmina narrowed towards the apex (wings absent?):—*Gedrosia*, Stål:—*G. varia*, Walker, from Australia.

These do not include the whole of the genera falling under this subfamily, but are enough for our purposes.

Genus EURYBRACHYS, Guérin, Stål.

Guérin, Voy. Bélanger Ind. Orient. p. 475 (1834); Burm., Handb. Ent. ii (i) p. 149 (1835); Spinola, A. S. E. F. (1 sér.) viii, p. 367 (1839); Walker, List. Hom. B. M. ii, p. 381 (1851): Stål, Stettin Ent. Zeit. xxiv, p. 245 (1863).

Guérin's diagnosis of the genus is as follows:—'Antennæ rather long, extending a little beyond the sides of the frons, the first joint short, the second long, granulate, cylindrical, a little rounded at the tip, at least thrice longer than broad, with the filamentous portion of the antennæ inserted at the extremity and very near the eyes: ocelli apparently absent: frons transverse, the anterior portion in form of a transverse lozenge, flat, ecarinate: labrum small, triangular: rostrum short, reaching barely the intermediate coxæ: thorax transverse, with the anterior lobe a little narrower: tegmina a little longer than the abdomen, dilated at their base, and a little contracted at the extremity: abdomen as high as broad: feet rather long, spinose; anterior and intermediate tibiæ flattened and dilated.

1. EURYBRACHYS VENUSTA, Stål.

Eurybrachys venusta, Stål, Stettin Ent. Zeit. xxiv, p. 245 (1863).

♀. Sanguineous; head, thorax anteriorly and barely basal half of tegmina olivaceous-green; the basal half of the tegmina spotted fuscous, and the base itself, sanguineous; corium behind the middle and commissural limbus of clavus, greyish, veined subolivaceous; wings whitish, subsanguineous at the base and veined sanguineous: abdomen sordid stramineous (sanguineous when alive?), beneath banded black. In stature like *E. tomentosa*, Fabr., differs in having the tegmina more distinctly and densely veined behind the middle. Tegmina twice longer than broad, subcoriaceous before the middle, opaque *(Stål)*. Long, 10; exp. teg., 25 millims.

Reported from Nilgiris.

2. EURYBRACHYS TOMENTOSA, Fabricius.

Cicada tomentosa, Fabricius, Syst. Ent. ii, p. 683 (1775); Spec. Ins. ii, p. 324 (1781); Mant. Ins. ii, p. 269 (1787); Ent. Syst. iv, p. 30 (1794).

Lystra tomentosa, Fabricius, Syst. Rhyng. p. 60 (1803); Germar in Thon's Archiv. ii, fasc. 2, p. 55 (1830).

Eurybrachys tomentosa, Burm., Handb. Ent. ii (i) p. 150 (1835); Am. & Serv., Hist. Nat. Ins. Hém. p. 517 (1843); Walker, List. Hom. B. M. ii, p. 381 (1851); Stål, Hem. Fabr. ii, p. 100 (1869).

♀. Green-olivaceous; tegmina olivaceous-green, with small scattered spots and two oblique bands, flavescent, apical part flavescent-greyish; small apical spots arranged in two transverse rows and a larger spot at the commissure, black, shining: wings whitish, a band abbreviated inwards behind the middle and a band continued through, placed near the apex, black: pectus and feet sanguineous, tibiæ and last pair of tarsi infuscate; abdomen croceous, disc of venter, black. Closely allied to *E. spinosa*, Fabr., differs in the head a little broader, almost broader than the thorax, tegmina more ample, much spotted in rows at the apex, wings adorned with a band running through them near the apex, not by a small spot, and the first pair of tibiæ above a little more dilated *(Stål)*. Exp. teg., 24; broad, 4 millims.

Reported from Sumatra, India: *E. fraterna*, Stål [Ofvers. K. V.-A. Förh. p. 450 (1858)], from Ceylon is hardly distinguishable from *E. tomentosa*, Fabr.

3. EURYBRACHYS BIMACULATA, Fabricius.

Lystra 2-maculata, Fabricius, Syst. Rhyng. p. 60 (1803).

Lystra bimaculata, Germar, in Thon's Arch. ii, fasc. 2, p. 55, (1830.)

Eurybrachys bimaculata, Stål, Hem. Fabr. ii, p. 100 (1869).

♂. Weakly greyish-olivaceous; tegmina concolorous, pellucid, remotely and very obsoletely sprinkled fuscous; a spot behind the apex of the clavus and minute apical spots arranged in two transverse rows, black, shining: wings very pale olivaceous-greyish hyaline, colourless towards the apex and adorned with two black bands, the one short reaching the exterior margin, the other running through the wing; interior limbus slightly infuscate before the middle: feet weakly, sordid sanguineous, sprinkled fuscous; tibiæ and last pair of tarsi, black: venter black, margined flavescent. Very closely allied to *E. tomentosa*, Fabr., coloration excepted, differs hardly except in the tegmina being a little narrower (*Stål*). Long, 6; exp. teg., 20; broad, 3½ millims.

Reported from Tranquebar.

4. EURYBRACHYS SPINOSA, Fabricius.

Cicada spinosa, Fabr., Ent. Syst. Suppt. p. 520 (1798); Coquebert, Ill. ii, p. 45, t. 9, f. 4 (1790).

Lystra spinosa, Fabr., Syst. Rhyng., p. 58 (1803).

Eurybrachys spinosa, Burm., Handb. Ent. ii, (i), p. 150 (1835); Spinola, A. S. E. F. (1 sér.) viii, p. 369 (1839).

Frons large, blunt, yellow: eyes ferruginous, prominulous, furnished with a small acute, prominent, spine: head and thorax obscure: tegmina deflexed, green, with three whitish oblique bands: feet sanguineous *(Fabr.)*. Similar to *E. tomentosa*, Fabr., but tegmina shorter, broader and without an apical transverse line of black dots *(Burm.)*. Long, 8½ millims.

Reported from India, Mauritius.

5. EURYBRACHYS LEPELLETIERI, Guérin.

Eurybrachys lepelletieri, Guérin, Voy. Bélanger Ind.-Orient. p. 476 (1834); Spinola, A. S. E. F. (1 sér.) viii, p. 369 (1839); Walker, List Hom. B. M. ii, p. 381 (1851).

♂. Rufous: head transverse, broad, with the anterior part of the frons flat, of a golden yellow: antennæ rufous: eyes whitish, prominulous, with a small acute prominent spine: thorax trapeziform of a somewhat pale yellow; tegmina of the same colour with a broad oblique rosy band, pointed towards the side, losing itself in the yellow in front, near the end another less marked band, a little reddish: wings white: body beneath and feet rosy red: abdomen yellowish *(Guérin)*. Body long, 7; exp. teg., 19 millims.

Reported from Bengal: resembles *E. spinosa*, Fabr., in form and size, but differs in the coloration of the tegmina.

6. EURYBRACHYS PUNCTIFERA, Walker.

Eurybrachys punctifera, Walker, List Hom. B. M. ii, p. 383 (1851); Distant, J. A. S. B. xlviii, (2), p. 38 (1879).

♂. Body fawn-colour, irregularly dotted with brown and black; head nearly as broad as the thorax; vertex very slightly arched, much broader than twice its length; frons stramineous with small ferruginous marks, transversely angular towards the clypeus where it is sinuate; its breadth about twice its length: clypeus lanceolate, ferruginous, at the base stramineous: rostrum tawny, reaching a little beyond the middle coxæ: fore-chest rounded in front, straight behind, not longer than the vertex, its breadth about four times its length: middle-chest longer than the fore-chest indistinctly 5-carinate: scutellum small, triangular, posteriorly acute: pectus pale stramineous: abdomen obconical, a little shorter than the thorax, banded with black towards the tip; anal appendages black: legs pale stramineous, mottled with black, especially on the fore legs: femora tinged with very pale green, with a few brown dots; only the tips of the fore-femora marked with black; hind tibiæ 6-spinose; tips of spines, black: tegmina fawn-colour, colourless towards the apex, adorned with black dots which are larger, more numerous, and more distinct towards the tips; veins tawny: wings almost colourless, each with a large black spot near the tip and a smaller one on the hind border at three-fourths its length; veins very pale green (*Walker*). Body long, 10½; teg., 37½ millims.

Reported from Madras; the Indian Museum has a specimen from Tenasserim.

7. EURYBRACHYS (?) RUBRICINCTA, Walker.

Eurybrachys rubricincta, Walker, Ins. Saund. Hom. p. 46 (1858).

Testaceous: vertex transverse, short, slightly arched, with a brown dot on each side; frons flat, smooth, transverse, dilated and angular on each side; face small: thorax slightly marked brown; pronotum slightly rounded in front with a slight median ridge; mesonotum slightly tricarinate; metanotum bright crimson: legs bright red, anterior legs much dilated: tegmina pale luteous, whitish at the tips with three spotted green bands; some black marks on the veins, three black dots near the anterior angle and two black submarginal points: wings snow-white with two black spots in front, the second almost apical. The abdomen in ♂ is furnished with foliaceous appendages; in ♀, towards the tip, with a bundle of snow-white filaments (*Walker*). Body long, 7¼; teg., 16½ millims.

Reported from N. India.

8. EURYBRACHYS (?) RUBRESCENS, Walker.

Eurybrachys rubrescens, Walker, Trans. Linn. Soc. Zool. i, p. 88 (1856).

Testaceous: head, vertex, and thorax with reddish marks: frons greenish testaceous: legs rosy red: tegmina pubescent, slightly tuberculated, with a black shining dot near the tip of the costa and at three-quarters of the length of the hind border, purplish red, and with black dots towards the base, tawny towards the tips, with a dingy hyaline median band and the borders chiefly of the same colour: wings milky white with a brown band (*Walker*). Body long, 10½; teg., 37—38 millims.

Reported from Mount Ophir, Singapore.

9. EURYBRACHYS SUBFASCIATA, Walker.

Eurybrachys subfasciata, Walker, List Hom. B. M. ii, p. 391 (1851).
Issus apicalis, Walker, l. c. p. 368 (1851).

♂, ♀. Body short, broad, testaceous, sprinkled with a darker colour: head as broad as the thorax: vertex very slightly arched with an indistinct ridge along the border, six times broader than long; frons short, flat, forming an acute angle on each side, not sinuate where it joins the clypeus but forming an obtuse inward angle on each side near which it has two slight oblique furrows; more than twice broader than long: clypeus triangular, slightly rounded: rostrum ferruginous: eyes spinose: fore-chest very slightly rounded anteriorly, straight behind, a little longer than the frons: middle-chest longer than the fore-chest, subtriangular, its hinder sides sinuate: pectus and metanotum red: abdomen obconical as long as the thorax: fore and middle legs red, very broad; hind legs slender, dark red, hind femora mostly pale yellow, hind tibiæ 4-spinose, tips of spines, black: tegmina pale ferruginous, partly tawny, adorned at the tips with a few black spots of various size and varying in each specimen; veins ferruginous: wings almost colourless or slightly tinged with brown, blackish with a white band towards the tips; veins tawny (*Walker*). Body long, 5-6½; teg., 15—16½ millims.

Reported from India, N. Bengal.

Genus MESSENA, Stål.

Stettin Ent. Zeit. xxii, p. 246 (1863): see p. 10.

10. MESSENA PULVEROSA, Hope.

Eurybrachys pulverosa, Hope, Trans. Linn. Soc. xix, p. 134, t. 12, f. 7*a*, *b*, (1845); Walker, List. Hom. B. M. ii, p. 382 (1851).

Messena pulverosa, Stål, Rio. Jan. Hem. ii, p. 67 (1862); Stettin Ent. Zeit. xxiv, p. 246 (1863).

Shining whitish: head and thorax yellow, abdomen concolorous, having the end clothed with a white cottony substance: basal half of tegmina virescent, apices fuscous-hyaline, sparingly spotted: wings whitish, with an irregular black spot at the anterior margin and other minute spots of the same colour placed posteriorly: first and intermediate pairs of feet of a red-lead colour, last pair fuscous *(Hope)*. Body long, $14\frac{1}{2}$; exp. teg., 55 millims.

Reported from Silhat: the Indian Museum has a specimen, locality unknown.

11. MESSENA NEBULOSA, Stål.

Messena nebulosa, Stål, Stettin Ent. Zeit. xxiv, p. 246 (1863).

♀. Pale fawn-colour; tegmina sordid whitish, veined fawn-colour: towards the base fawn-colour or (especially beneath) weakly violaceous-ferruginous, behind the middle clouded and sprinkled pale-fuscescent; adorned near the apex in the middle of the apical part with a spot and at the commissural margin, some distance behind the middle, with two spots (the posterior minute) or with one spot, black; sometimes sparingly sprinkled fuscous before the middle: wings whitish, obsoletely banded with fuscescent behind the middle, near the apex with some small black-fuscous spots which are sometimes wanting: abdomen (when alive ?) sanguineous; apex of the anterior femora and the first pair of tibiæ sprinkled fuscous, entire anterior tarsi and the last pair behind the middle, black-fuscous. Closely allied to *M. pulverosa*, Hope, tegmina and wings narrower, the former are not amplified towards the apex and are $2\frac{1}{2}$ times longer than the breadth *(Stål)*. Long, 15; exp. teg., 47—50 millims.

Reported from Cambodia, Malacca and Perak (?).

Genus THESSITUS, Walker.

Thessitus, Walker, Journ. Ent. i, p. 307 (1862); Stål, Ofvers, K. V.-A. Förh. p. 753 (1870): *Thessita*, Stål, Stettin Ent. Zeit. xxii, pp. 246-247, (1863): see p. 10.

Sec. A. Vertex shorter than breadth by about one-half, deeply sinuate at the base, truncated at the apex, lateral margins obtusely elevated in the middle; frons near the base furnished with a transverse, arched, distinct ridge, lateral angles much produced, rounded at the apex, lateral margins above and beneath those angles slightly sinuate; infraocular spines short, scarcely visible from above: wings slightly narrowed towards the apex, apex broadly rounded. To this section belong *T. insignis*, Westwood, and *T. mortuifolia*, Walker.

Sec. B. Vertex less deeply sinuate at the base, apex broadly rounded; frons furnished near the base with a straight obsolete ridge, parallel to the basal margin, lateral angles rounded at the apex, lateral margins above those angles slightly sinuate, beneath them straight; infraocular spines somewhat largish, very prominent; wings more narrowed towards the apex than in section A. The *T. nigro-notata*, Stål, belongs to this section.

12. THESSITUS INSIGNIS, Westwood.

Eurybrachys insignis, Westwood, A. M. N. H. ix, p. 119 (1842); Hope, Trans. Linn. Soc. xix, p. 134, t. 12, f. 9 (1845); Walker, List. Hom. B. M. ii, p. 382 (1851); J. Linn. Soc. Zool. i, p. 155 (1857); l. c. x, p. 133 (1867).

Eurybrachys multicolor, Walker, J. Linn. Soc. Zool. i, p. 88 (1856).

Thessita insignis, Stål, Stettin Ent. Zeit. xxiv, p. 247 (1863).

Thessitus insignis, Stål, Ofvers. K. V.-A. Förh. p. 753 (1870).

Shining white: head and thorax yellow, sides of abdomen sanguineous: tegmina flavescent, sprinkled with various minute black spots: wings whitish, with an irregular black spot at the anterior margin and other minute spots of the same colour posteriorly: anterior feet fuscous-yellow, posterior green, spines on tibiæ, blackish *(Hope)*. Body long, 14½; exp. teg., 54 millims.

Reported from Malabar; Philippines; Sumatra.

13. THESSITUS MORTUIFOLIA, Walker.

Thessitus mortuifolia, Walker, Journ. Ent. i, p. 307, t. 15, f. 4 (1862).

Thessita mortuifolia, Stål, Stettin Ent. Zeit. xxiv, p. 247 (1863).

♂. Fawn colour, tibiæ verging into olivaceous, first pair sprinkled fuscous: tegmina pellucid-greyish, veined fuscous and subolivaceous, marked with black spots and small black transverse lines at the margins; entire clavus and oblique basal part of corium olivaceous-virescent, corium adorned behind the virescent part with a very oblique sanguineous patch which does not reach the costal margin: wings whitish, furnished near the apex with 5-6 black spots, two larger and sometimes confluent. In stature very similar to *T. insignis*, Westwood; tegmina more than twice longer than broad, not amplified towards the apex, the apex obliquely rounded, costal margin slightly sinuate in the middle *(Stål)*. Long, 14; exp. teg., 50 millims.

Reported from Cambodia: the Indian Museum has a specimen from Perak.

14. THESSITUS NIGRO-NOTATUS, Stål.

Thessita nigro-notata, Stål, Stettin Ent. Zeit. xxiv, p. 247 (1863).

♂. Fawn-colour: basal spot on clypeus, band on frons placed a little beneath the middle, abbreviated and interrupted in the middle, a band a little above the middle running between the lateral angles and twice broadly interrupted, and small confluent spots placed at the basal margin and above the subbasal ridge, two spots on the genæ (one basal, the other apical), five spots on the vertex, antennæ, two anterior and one lateral spot on the thorax, four small subbasal spots on the scutellum, apical spots on the first pair of femora and spots on the anterior tibiæ, black : tegmina towards the base more obscure, sparingly sprinkled black and adorned with a sanguineous line near the costal margin before the middle ; costal margin behind the middle and the apical margin marked with small black spots : wings weakly fuscescent, veined obsoletely violaceous, apical part sordid whitish, marked by a large spot (sometimes divided into two) and several minute marginal spots, black-fuscous : last pair of tibiæ infuscate. Vertex more than twice broader than long : tegmina slightly amplified towards the apex, obtusely obliquely rounded at the apex : tibiæ 5—6 spinose (*Stål*). Long, 11 ; exp. teg., 32 millims.

Reported from Malacca, Tenasserim.

Genus Loxocephala, Schaum.

Ersch & Gruber, Allg. Ency. Wissen & Kunste, art. Fulgorida, sec. 51, p. 71 (1850) : see p. 10.

15. Loxocephala æruginosa, Hope.

Lystra æruginosa, Hope, Trans. Linn. Soc. xviii, p. 443, t. 31, f. 1 (1841).

Eurybrachys æruginosa, Walker, List Hom. B. M. ii, p. 382 (1851).

Loxocephala æruginosa, Schaum, Allg. Enc. Wissen. & Kunste sec. 5I, p. 71 (1850).

Body above and head green ; face flat, anterior margin acutely curved, frontal ridge between the eyes parallel with the anterior margin : tegmina sordid fulvescent varied with green and black ; margins externally dull black ; basal half irrorated ; apical half with a large round spot before the apex and the apex, black : wings powdered white : feet sanguineous (*Hope*). Long, 27¼ ; broad, 8½ millims.

Reported from Silhat. In a specimen in the Indian Museum from Sikkim the dull black margin to the apex is wanting or obsolete.

16. Loxocephala decora, Walker.

Eurybrachys decora, Walker, List Hom. B. M. ii, p. 382 (1851).

♂. Body green : head nearly as broad as the thorax ; vertex with a rim which is black in front and behind, slightly rounded anteriorly, very slightly sinuate posteriorly, about three times broader than long ; frons large, scutcheon-shaped, much broader than long, surrounded by a slight rim ; clypeus small : rostrum tawny : pronotum hardly longer than the vertex, nearly straight behind, slightly rounded on fore-border along which there is a black band; thrice broader than long: mesonotum short, hardly longer than the pronotum, nearly triangular, with a black interrupted band in front: abdomen obconical, much longer than the thorax: legs red; fore legs rather broad and flat, fore tibiæ striped black, feet partly black: tegmina green with an oblique black band at the base, black along the tips, near which there is another oblique black band in the disc, two white dots in the middle, one near the fore border, the second near the hind border and nearer the tip than the first; veins green: wings white, green towards the tips which are black; an oblique black spot on the fore-border near the tip; veins pale yellow (*Walker*). Body long, 10½; wings long, 29½ millims.

Reported from Assam: the Indian Museum possesses a specimen from Sikkim.

Genus NESIS, Stål.

Rio Jan. Hem. ii, p. 67 (1862): see p. 10.

17. NESIS TRICOLOR, Walker.

Eurybrachys tricolor, Walker, List Hom. B. M. ii, p. 384 (1851).

Nesis tricolor, Stål, R. J. Hem. ii, p. 67 (1862); Stettin Ent. Zeit. xxiv, p. 248 (1863).

♀. Sanguineous; head weakly olivaceous, frons margined fuscous at the base; tegmina blackish, weaker at the apex, variegated with confluent sordid stramineous-powdered spots; wings whitish. Differs from *N. sanguinipes*, Stål, in not having the tegmina distinctly narrowed towards the apex. Vertex a little longer in the middle than at the eyes, anteriorly broadly rounded: frons flat, aciculate: thorax bi-impressed in the middle: scutellum unicarinate: tegmina scarcely narrowed towards the apex, costal and commissural margins subparallel, obliquely broadly rounded at the apex, transverse veinlets rare, fine (*Stål*). Long, 9; exp. teg., 28 millims.

Reported from India.

18. NESIS (?) SANGUINIPES, Stål.

Aphæna sanguinipes, Stål, Ofvers. K. V.-A. Förh. xi, p. 245 (1854).

Head, sordid yellow-testaceous; thorax and scutellum obscurely rufous-testaceous: tegmina black-fuscous with two indistinct bands and several posterior spots yellow farinose; beneath with feet sanguineous (*Stål*). Long, 8; broad, 4 millims.

Reported from India.

Genus FRUTIS, Stål.

Ofvers. K. V.-A. Förh. p. 488 (1862) : see p. 11.

19. FRUTIS PULCHRA, Gray.

Lystra pulchra, Gray, Griffith's ed. An. King. Ins. ii, p. 260, t. 90, f. 5 (1832).
Aphæna pulchra, Walker, List Hom. B. M. ii, p. 278 (1851).
Aphæna veris-amor, Walker, J. Linn. Soc. Zool. i, p. 143 (1857).
Frutis pulchra, Stål, Ofvers. K. V.-A. Förh. p. 488, 500 (1862).

♂. Greenish-brown with the abdomen bright red, the tip clothed with a whitish cottony substance : tegmina green at the base, spotted with white opaque colour, with a transverse arched band of fulvous yellow ; tip pale yellowish-brown : wings covered with a white rosy matter with brown spots near the base and pale yellowish-brown at the apex : veins delicate (*Gray*). Black, face and legs ferruginous : abdomen red : tegmina narrow, intensely grass-green, with the costa, a basal spot, a few dots on the disc and an exterior curved transverse line, yellow ; tips tawny : underside with various marks of white tomentum which also appear on the costa above, at the base : wings snow-white with tawny tips (*A. veris-amor*, Walker). Body long, 23 ; exp. teg., 55 millims.

Reported from Borneo, India : the type of the genus, see Stål.

20. *Species of uncertain position.*

Eurybrachis reversa, Hope, Trans. Ent. Soc. xix, p. 134, t. 12, f. 8 (1845) ; *Eurybrachys id.*, Walker, List Hom. B. M. ii, p. 382 (1851).

Fuscous-yellow, head and thorax concolorous, abdomen whitish in the middle, adorned posteriorly with a yellow cottony substance ; apex shining white : tegmina fuscous-yellow, tinted subsanguineous at the base ; a round white spot at anterior margin, a second smaller almost on the middle of the disc and other very minute spots sprinkled about : basal half of wings whitish, apex irregularly irrorated fuscous : four anterior feet yellow-fuscous ; tibiæ more obscure ; last femora pale testaceous ; tibiæ blackish (*Hope*). Body long, 14½ ; exp. teg., 34 millims.

Reported from Silhat.

Subfam. DICTYOPHARINA, Stål.

Ofvers. K. V.-A. Förh. p. 744 (1870) : *Dictyopharida*, Stål, Hem. Afric. iv, p. 129, 149 (1866) : *Pseudopharides* pt., Am. & Serv., Hist. Nat. Ins. Hém. p. 502 (1843) : *Dyctiophoroides* pt., Spinola, A. S. E. F. (1 sér.) viii, p. 283 (1839).

Last tibiæ without a mobile spur at the apex : sides of frons not angulated ; feet very often simple ; anal area of wings never reticulate.

Clavus very rarely granulate, acuminate at apex, rarely somewhat obtusish, distinctly closed, two veins distant or very distant from the apex, sometimes, however, behind the middle of the clavus united in one; costa very rarely dilated: tegmina sometimes abbreviated or connate with clavus and corium. Claval vein not reaching the apex, united with the commissural margin near the apex: tegmina connate with clavus and corium, the lateral margins of the clypeus always carinate or acuminate: frons without an apical ocellus *(Stål)*.

Genus DICHOPTERA, Spinola.

A. S. E. F. (1 sér.) viii, p. 286 (1839); Stål, Hem. Afric. iv, p. 149 (1866).

Tegmina not or barely abbreviated, reaching at least the apex of the abdomen, very often extending beyond it: clavus distinct, furnished with one transverse vein between the interior vein and the claval suture: head narrower than the thorax: costa a little dilated, intramarginal: tegmina furnished with very numerous transverse veins towards the apex; feet longish: last pair of tibiæ multispinose, first pair longer than the femora (*Stål*).

21. DICHOPTERA HYALINATA, Fabricius.

Fulgora hyalinata, Fabr., Spec. Ins. ii, p. 315 (1781); Mant. Ins. ii, p. 261 (1787); Olivier, Enc. Méth. vi, p. 572 (1791): Fabr., Ent. Syst. iv, p. 5 (1794); Syst. Rhyng. p. 4 (1803); Donovan, Ins. India, t. 7, f. 3 (1800).

Fulgora hyalina, Gmelin, ed. Syst. Nat. i (4), p. 2091 (1782).

Flata hyalinata, Germar, Mag. Ent. iii, p. 190 (1818); Thon's Archiv. ii, (fasc. 2), p. 47 (1830).

Dyctiophora hyalinata, Germar, Silb. Rev. Ent. i, p. 175 (1834).

Pseudophana hyalinata, Burm., Handb. Ent. ii, (i), p, 160 (1835); Westwood, Trans. Linn. Soc. xviii, p. 150 (1841).

Dichoptera hyalinata, Spinola, A. S. E. F. (1 sér.) viii, p. 289, t. 13, f. 3 (1839); Am. & Serv., Hist. Nat. Ins. Hém. p. 504 (1843); Walker, List Hom. B. M. ii, p. 303 (1851).

Frons produced, short, conical, above inequal, beneath furrowed, pallid, with black dots and streaks: eyes large, globose, white: thorax pallid, irrorated black: scutellum more obscure: tegmina hyaline, veins punctured white and black and with a black streak in the middle: wings hyaline with a dull black spot on the apex (*Fabricius*). Body long, 19½; exp. teg., 50 millims.

Reported from Bengal: the Indian Museum possesses specimens from Bangalore, Calcutta, India.

Genus METAURUS, Stål.

Hem. Afric. iv, p. 151 (1866).

Head not or but very slightly callous behind the eyes, this callous part seen from the side forming a narrow margin behind the eyes, the cephalic process short and slender; vertex, the disc of the thorax, and scutellum lying in the same plane; frons and clypeus long, the former tricarinate, the latter unicarinate in the middle; second joint of the antennæ short, subglobose; rostrum extending beyond the apex of the last coxæ: thorax carinate in the middle: apical two-thirds of the tegmina very densely reticulated, costa very slightly dilated; the two claval veins united behind the middle: feet long, slender; first pair of coxæ, oblong, scarcely reaching the apex of the clypeus; first femora scarcely dilated beneath, armed with a small minute tooth near the apex; tibiæ simple, longer than the first femora, last pair 6-spined (*Stål*).

22. METAURUS RETICULATUS, Stål.

Metaurus reticulatus, Stål, Berlin Ent. Zeitschr. x, p. 391 (1866).

♀. Pale yellow-virescent: tegmina pale yellow-greenish-hyaline, veins greenish; wings somewhat colourless: the small tubercle placed on the genæ before the upper part of the eyes and a small anterior spot on the sides of the thorax behind the eyes, black and shining: cephalic process short, slender, twice as long as the thorax, turning upwards; frons oblong, very slightly roundly amplified towards the apex, narrowed above the middle: thorax with a somewhat indistinct ridge: scutellum slightly tricarinate: tegmina gradually somewhat amplified towards the apex; stigma with eight veins (*Stål*). Long, 11; exp. teg., 32 millims.

Reported from Cambodia.

Genus ANAGNIA, Stål.

Stettin Ent. Zeit. xxii, p. 149 (1861); Hem. Afric. IV, p. 151 (1866).

Head prominent before the eyes; frons elongate, tricarinate; clypeus marginate, carinate in the middle: pronotum carinate in the middle, posteriorly angularly-emarginate, anteriorly behind the head, obtusely angularly-prominent: tegmina extending much beyond the abdomen, longitudinal veins on corium forked and united with some few transverse veinlets towards the apex: feet rather long, slender, first pair of femora dilated beneath, last pair of tibiæ multispinose: allied to *Dictyophara* (Stål).

23. ANAGNIA SPLENDENS, Germar.

Flata splendens, Germar in Thon's Archiv. ii, fasc. 2, p. 48 (1830): Walker, List Hom. B. M. ii, p. 310 (1851).

Pseudophana splendens, Westwood, Trans. Linn. Soc. xviii, p. 151 (1841).

Dictyophora indiana, Walker, l. c. p. 310 (1851).

Anagnia splendens, Stål, Stettin Ent. Zeit. xxii, p. 149 (1861.)

♂, ♀. Greyish-flavescent, sprinkled fuscous; a stigmatic spot on the tegmina and interior streak behind the middle, a small subapical streak on the wings, fuscous; anterior tibiæ ringed black, last pair with spine black (*Stål*). Long, $7-9\frac{1}{2}$; exp. teg., 20—25 millims.

Reported from Manilla, Java, Bombay, India.

Genus CENTROMERIA, Stål.

Ofvers. K. V.-A. Förh. p. 745 (1870).

Body somewhat elongate: head produced, ascending more or less before the eyes, gradually narrowed: vertex somewhat equal in breadth to the eyes, gradually acuminated before the eyes; frons tricarinate, the median ridge running through it very distinct, lateral ridges extended through half of the upper frons, less elevated; a distinct ridge running through the clypeus: thorax unicarinate, posteriorly broadly angularly sinuated: scutellum tricarinate: tegmina gradually amplified towards the apex, apical part furnished with numerous transverse veins; the veins of the clavus united behind the middle; interior ulnar vein forked at almost the same distance from the base and from the united claval veins; radial vein forked a little behind the middle of the tegmen; stigma elongate or oblong, with some veins: feet long, slender; first pair of femora beneath near the apex with a very minute, acute spinule. Near to *Dictyophara*, Germar, the feet are longer and more slender and the first pair of femora spined (*Stål*).

24. CENTROMERIA SPEILINEA, Walker.

Dictyophora speilinea, Walker, J. Linn. Soc. Zool. i, p. 84 (1856).

Green: head, three ridges on the pronotum (the lateral pair marginal) and three on the mesonotum also its sides in part, emerald-green: head with three ridges above and one beneath and two ridges on pronotum near the lateral emerald-green ridges, luteous: cephalic protuberance lanceolate, ascending, as long as the hind part of the head: fore tibiæ and tarsi, tawny: tegmina and wings limpid, veins and stigma green, the latter occupying three areolas (*Walker*). Body long, $10\frac{1}{2}$; exp. teg., $29\frac{1}{2}$ millims.

Reported from Singapore.

Genus DICTYOPHARA, Germar.

Dictyophora, Germar, Silb. Rev. Ent. i, p. 165 (1833): Walker, List Hom. B. M. ii, p. 307 (1851).

Dyctiophora Spinola, A. S. E. F. (1 sér.) viii, p. 290 (1839): *Pseudophana*, Burm., Handb. Ent. ii (i) p. 159 (1835); Am. & Serv., Hist. Nat. Ins. Hém. p. 506 (1843): *Chanithus*, Amyot, A. S. E. F. (2 sér.) v, p. 160 (1847); Kolenati, Mel. Ent. vii, p. 29 (1857): *Nersia*, Stål, Rio Jan. Hem. ii, p. 62 (1861): *Dictyophara*, Stål, Hem. Afric. iv, p. 154 (1866): Fieber, Rev. Mag. Zool. (3 sér.) iii, p. 357 (1875).

Body oblong or oval, a little depressed: head not or only very slightly callous behind the eyes, varying very much in form, abruptly truncated before the eyes or more or less to a distance protuberant, the protuberance straight or recurved: vertex and frons very often carinated: clypeus long, carinated in the middle: second joint of antennæ small, subglobose: rostrum long: thorax very often broadly emarginated at the base, slightly sinuated anteriorly behind the eyes, touching the entire posterior margin of the head, furnished with 1—3 ridges: scutellum very often tricarinated. Tegmina very often extending beyond the apex of the abdomen, third part or barely apical half furnished with transverse veins; clavus without a transverse vein: feet moderate or longish, slender, simple; first pair of femora unarmed, shorter than the tibiæ, last pair of tibiæ 4—6-spinose: exterior radial and ulnar veins contiguous at the base (*Stål*).

25. DICTYOPHARA LINEATA, Donovan.

Fulgora lineata, Donovan, Ins. India, t. 8, f. 1 (1800); Westwood, Trans. Linn. Soc. xviii, p. 147 (1841).

Fulgora pallida, G. Gray, Griffith, An. King., Ins. ii, p. 260, t. 90, f. 2 (1832).

Dictyophora lineata, Walker, Cat. Hom. B. M. ii, p. 310 (1851).

Cephalic process linear, ascending; tegmina pale with two brown lines (*Donovan*). Pale testaceous or fulvous-whitish: cephalic process as long as half the body, ascending, pale greyish-luteous, slender, a little thickened at the apex: tegmina narrow, elongate, whitish, with blackish dots arranged in lines towards the internal and external margin of the posterior part of the tegmina, also a narrow black line towards the base of the costa: cephalic process and feet, punctured black: last femora at the apex and the tarsi broad (*Westw.*) Body long with cephalic process (wings closed), 12½ millims.

Reported from Bengal. In Donovan's figure, the black spots on the tegmina appear to be confluent forming two lines and extending throughout the entire length of the tegmina: the Indian Museum possesses a specimen from Sibságar (Assam).

26. DICTYOPHARA PALLIDA, Donovan.

Fulgora pallida, Donovan, Ins. India, t. 8 f. 2 (1800).

Pseudophana pallida, Westwood, Trans. Linn. Soc. xviii, p. 150 (1841).

Dictyophora pallida, Walker, Cat. Hom. B. M. ii, p. 310 (1851) : nec *D. pallida*, Walker, l. c. p. 320.

Cephalic process linear, ascending : thorax pale green, with red lineations ; tegmina hyaline (*Donovan*). Size of preceding, but easily recognized by the longitudinal red lines on pronotum and prostethium. Body long with cephalic process, 12½ ; to end of closed tegmina, 19½ millims.

Reported from Bengal : the Indian Museum possesses specimens from Ràniganj (Lower Bengal).

27. DICTYOPHARA GRAMINEA, Fabricius.

Fulgora graminea, Frabricius, Syst. Rhyng. p. 4 (1803).

Flata graminea, Germar in Thon's Archiv. ii. fasc. 2, p. 47 (1830).

Pseudophana graminea, Burm., Handb. Ent. ii (2) p. 160 (1835) ; Westwood, Trans. Linn. Soc. xviii, p. 150 (1841).

Dictÿophora graminea, Walker, List. Hom. B. M. ii, p. 309 (1851).

Cephalic process porrect, bicarinate broadly above : tegmina and body green, immaculate (*Fabr.)*.

Reported from India.

28. DICTYOPHARA DESPECTA, Walker.

Dictyophora despecta, Walker, List. Hom. B. M. ii, p. 314 (1851).

♂. Body tawny : head quite four times longer than the pronotum ; the cephalic protuberance continued in a line with the pronotum, almost prismatic, slightly tapering from the base to the tip which is rather obtuse : angles green : pronotum slightly conical in front, much sinuated on the hind border, adorned with five bright green stripes ; a slight oblique ridge on each side : mesonotum with three bright green stripes and a green spot on each side : abdomen obconical, a little longer than the thorax : legs pale tawny, slender, slightly grooved ; hind tibiæ armed with four black-tipped spines : wings colourless, a slight tawny tinge on the tegmina ; stigma tawny, occupying parts of 2—3 areolas : veins brown, tawny towards the base (*Walker*). Body long, 10½ ; teg., 16½ millims.

Reported from Malabar coast.

29. DICTYOPHARA SINICA, Walker.

Dictyophora sinica, Walker, List. Hom. B. M. ii, p. 321 (1851) ; Stål, Ofvers. K. V. A. Förh. p. 487 (1862). China.

Dictyophora inscripta, Walker, l. c., p. 322 (1851). Hong Kong.

Dictyophora insculpta, Walker, l. c., Suppt. p. 67 (1858). N. China.

Body pale luteous, almost fusiform : head above with a short green stripe which does not extend beyond the vertex, the lateral edges of which are also green ; beneath bright luteous with a pale green border, the median ridge extending to the clypeus, bright green ; clypeus tawny, striped with brown towards the tip : rostrum pale tawny : pronotum striped green ; mesonotum with three indistinct green stripes : abdomen green, a brown stripe on the disc, pale tawny at the tip : legs pale tawny, partly striped with brown ; hind tibiæ with four black-tipped spines : tegmina and wings colourless, the tips of the former pale yellowish-brown ; stigma brown occupying three areolas ; veins green, brown towards the tips (*Walker*). Body long, 9½ ; teg., 16¾ millims.

Reported from China : Assam (?).

30. Dictyophara (?) nigrimacula, Walker.

Dictyophora nigrimacula, Walker, List. Hom. B. M. ii, p. 318 (1851).

♂. Body fusiform : head as long as the thorax tapering slightly to the tip which is obtuse, slightly elevated ; cephalic protuberance transversely striated above and on each side ; upper side ferruginous ; vertex with a median stripe, yellow, and lateral stripes, green, which last are continued along near half the length to the tip ; a black median stripe extends from the vertex to the tips towards which it occupies the whole disc ; sides black with tawny borders : under-side bright orange red, having on each side a tawny brown-spotted stripe which in its course becomes bright green and is continued along the clypeus ; the bright green middle-ridge also extends along the whole length and is pale yellow at each end ; the under side slightly widens along the whole length from the tip to the clypeus, with the exception of a slight contraction between the eyes : clypeus reddish at its base, brown with yellow stripes towards its tip : rostrum tawny with a black tip, reaching the hind coxæ : pronotum ferruginous, slightly widened and almost angular in front, slightly sinuated along the posterior margin, with five bright green ridges : the inner pair a little oblique, the outer pair more oblique and parallel to the sides which are green ; the space beneath on each side of the eyes is pyriform, red, with a green border and a bright green median stripe : mesonotum black along the anterior margin, with three bright green slightly interrupted stripes ; on each side near the base of the tegmen is a bright green spot ; beneath black with a few yellow stripes and a ferruginous border : abdomen black, obconical, a little longer than the thorax with five rows of greenish-tawny spots, those of the middle row are slender and form a slightly interrupted stripe, the others are irregular and much emarginated : legs tawny, slightly grooved, striped black, feet black towards the tips, posterior tibiæ armed with five black-tipped spines; hind-feet much dilated: tegmina and wings colourless, tips of the former brown, stigma very dark occupying 3—4 areolets, veins black, greenish-tawny at the base *(Walker)*. Body long, 10½; teg., 21 millims.

Reported from N. India.

31. DICTYOPHARA (?) ALBIVITTA, Walker.

Dictyophora albivitta, Walker, List. Hom. B. M. ii, p. 319 (1851).

♂. Body tawny, fusiform: head above with three green stripes, median more distinct; beneath with a bright green ridge and on each side a pale green stripe, the three continued throughout the whole length and through a part of the clypeus: rostrum tawny, tip black, extending a little beyond the intermediate coxæ: pronotum anteriorly rounded, not conical, slightly sinuated along the hind border which like the sides is green: disc with five bright green stripes, inner pair curved, slightly oblique, outer pair more oblique, parallel to the sides; plates beneath, pyriform, bordered with green and with a green stripe: mesonotum with three green stripes and a green spot on each side: abdomen grass-green, obconical, mottled yellow, tawny at the tip with three parallel indistinct whitish stripes: legs pale tawny, partly green, slightly grooved; femora and anterior tibiæ striped brown, posterior tibiæ armed with five black-tipped spines; posterior feet much dilated: tegmina and wings colourless, the former slightly tawny at the tip; stigma tawny occupying two areolets and part of a third; veins pale greenish-tawny, darker towards the tips *(Walker)*. Body long, 10½; teg., 21 millims.

Reported from N. Bengal.

32. DICTYOPHARA WALKERI, n. sp.

Dictyophora pallida, Walker, List B. M. ii, p. 320 (1851); nec Donovan.

♂. Body fusiform, pale luteous: tip of vertex, black: head above with a bright green stripe along each edge and with a short green median stripe which does not extend beyond the eyes; sides green; beneath bright luteous with three bright green ridges which are continued along part of the clypeus: rostrum tawny, tip black, reaching nearly to the last coxæ: pronotum hardly conical in front, slightly sinuate posteriorly, bordered with green, with five bright green stripes, side plates pyriform with green margins and a bright green median stripe: mesonotum with three and the sides with two green stripes: abdomen obconical, a little longer than the thorax, yellow with whitish stripes, luteous towards the base, tawny at the tip: posterior margins of the segments grass-green: legs slender, slightly grooved, dull pale yellow, tinged with green; tips of the feet and of the fore tibiæ, brown; hind tibiæ armed with four black-tipped spines; hind feet moderately broad: tegmina and wings colourless, a slight tawny tinge on the tips of the tegmina, stigma pale brown, occupying two areolets and part of a third; veins green, brown towards the tips (*Walker*). Body long, $7\frac{1}{4}$; teg., $14\frac{3}{4}$ millims.

Reported from N. India.

33. DICTYOPHARA LEPTORHINA, Walker.

Dictyophora leptorhina, Walker, List Hom. B. M. ii, p. 321 (1851).

♂. Body tawny, fusiform: cephalic prolongation with the four sides of equal breadth with green edges, a green stripe above, distinct only on the vertex, that beneath appearing along the whole length to the clypeus which is brown: rostrum tawny, tip black, reaching the hind coxæ: pronotum rounded in front, more slightly sinuate behind, with green ridges which also appear on the mesonotum: abdomen green, obconical, slightly luteous towards the base, longer than the thorax: legs pale tawny, slightly grooved; femora striped black; hind tibiæ armed with five black-tipped spines; hind feet much dilated: tegmina and wings colourless; stigma brown, colouring the borders but not the discs of three areolas; veins of the tegmina brown, green towards the base; veins of wings, black (*Walker*). Body long, $9\frac{1}{2}$; teg., 19 millims.

Reported from Java: with the thorax luteous, from India.

34. DICTYOPHARA SAUROPSIS, Walker.

Dictyophora sauropsis, Walker, Jour. Ent. i, p. 306 (1862).

♂. Tawny: head forming a long, quadrilateral, slightly tapering cone, which has a rim on both sides, above and beneath; underside reddish ochraceous, with three other pale ridges: pronotum arched, more than four times as broad as long, with a median ridge: mesonotum bicarinate: tegmina and wings cinereous hyaline; veins black, pale tawny towards the base; transverse veinlets incrassated: tegmina with an elongated black stigma (*Walker*). Body long, $10\frac{1}{2}$; teg., 21 millims.

Reported from Dacca (Bengal).

35. DICTYOPHARA PATRUELIS, Stål.

Pseudophana patruelis, Stål, Freg. Eug. Res. Ins. p. 271 (1859).
Dictyophara patruelis, Stål, Rio Jan. Hem. ii, p. 63 (1862).

♂. Weakly miniaceous: vertex, abdomen, and feet sordid weak flavescent: frons, clypeus, thorax, scutellum, and pectus with grass-green ridges: tegmina vitreous, veins and stigma fuscous: head as long as the thorax and scutellum taken together. Close to *D. sobrina*, Stål, but smaller and head shorter :head testaceous-flavescent ; vertex with a longitudinal ridge between the eyes ; frons, clypeus, and thorax miniaceous, the two former with ridges, the last with a median ridge, an oblique line on both sides and a lateral ridge and the lateral margins, grass-green : scutellum weakly miniaceous, with three parallel ridges and a posterior spot on each side, grass-green : tegmina almost twice as long as the abdomen, sordid vitreous, the third apical part transversely veined ; veins and stigma fuscous : pectus weakly miniaceous with a grass-green ridge on both sides : abdomen and feet weak sordid virescent-flavescent, the disc of the abdomen and the apices and lines on the feet, black-fuscous (*Stål*). Body long, 8 ; broad, 2¼ millims.

Reported from Malacca.

Subfam. CIXIINA, Stål.

Cixiida, Stål, Hem. Afric. IV, p. 129, 164 (1866) ! *Cixiina*, Ofvers. K. V.-A. Förh. p. 746 (1870).

Similar to *Dictyopharina* except that there are usually three ocelli, one of which is placed on the apex of the frons : this frontal ocellus is very rarely wanting and if wanting the sides of the clypeus are convex and ecarinate (*Stål*).

Genus CIXIUS, Latreille, Stål.

Gen. Ins. iii, p. 166 (1807) ; Guérin, Voy. Bélanger Ind. Orient. Zool. p. 463 (1834) ; Burm., Handb. ii (i) p. 156 (1835) : Stål, Hem. Afric. iv, p. 164, 169 (1866) : Fieber, Rev. Mag. Zool. (3 sér.) iii, p. 355 (1875).

Head somewhat narrower than the thorax, short, roundly sinuated at the base ; vertex somewhat concavish ; frons and clypeus together elliptical, furnished with a median ridge running through them ; frons with an ocellus on the apex, sides of clypeus carinated : eyes slightly or only very slightly sinuated beneath : antennæ inserted beneath the eyes, very short, first joint concealed, second small, subglobose : thorax very short, posteriorly, deeply, angularly emarginated : scutellum tricarinate lateral margins of tegmina parallel, interior ulnar vein and the radial vein forked at a distance from the base : feet moderate, simple, last tibiæ armed with 2—3 spines (*Stål*).

36. CIXIUS (?) ALBISTRIGA, Walker.

Cixius albistriga, Walker, J. Linn. Soc. Zool. i, p. 87 (1856).

Blackish, testaceous beneath : head much smaller and frons narrower than in European species ; frons dark brown : posterior margins of abdominal segments reddish above, whitish beneath : tegmina brown with three whitish transverse streaks towards the tip of the costa: wings grey (*Walker*). Body long, $4\frac{1}{4}$; teg., $10\frac{1}{2}$ millims.

Reported from Singapore: a specimen doubtfully assigned to this species has been received from Burma, but is probably a *Brixia*.

37. CIXIUS (?) CAUDATUS, Walker.

Cixius caudatus, Walker, Ins. Saund. Hom. p. 43 (1858).

Tawny: vertex depressed, longer than broad, its borders elevated; frons and face forming a fusiform compartment with a median ridge: pronotum arched, very narrow in the middle; mesonotum 5-carinate, the external pair of ridges angulate, a brown stripe interlined with tawny on each side: oviduct extending far beyond the abdomen, sheaths brown: legs testaceous: tegmina with a brown stigma, veins testaceous with black dots, some black streaks also on the disc before the middle and the transverse veinlets and some parts of the exterior veins clouded with brown: wings with black veins (*Walker*). Body long, $4\frac{1}{4}$; teg., $12\frac{1}{2}$ millims.

Reported from India.

38. CIXIUS (?) EFFERATUS, Walker.

Cixius efferatus, Walker, J. Linn. S. Zool. i, p. 87 (1856).

Testaceous: frons subfusiform, attenuated in front: eyes large nearly contiguous on the vertex: abdomen tawny: tegmina and wings limpid; veins tawny; stigma testaceous, with a brown spot close to its tip and opposite a smaller and paler brown spot on the interior border: wings with a brown streak at the tip of the costa (*Walker*). Body long, $5\frac{1}{4}$; exp. teg., [illegible] millims.

Reported from Singapore.

Genus OLIARUS, Stål.

Berlin Ent. Zeitschr. vi, p. 306 (1862); Hem. Afric. iv, p. 164, 166 (1866); Hem. Fabr. ii, p. 92 (1868): Fieber, Rev. Mag. Zool. (3 ser.) iii, p. 356 (1875).

Head somewhat narrower than the thorax, angularly emarginate at the base; vertex varying in length and breadth, concave; frons and clypeus together elliptical, furnished with a distinct, median, longitudinal ridge running through them, lateral margins rounded, slightly dilated; frons with an ocellus on the apex; sides of clypeus ridged: eyes scarcely or but slightly sinuated beneath: antennæ very short, inserted beneath the eyes, first joint hidden, second somewhat globose, small: thorax very short, posteriorly deeply angularly sinuated: scutellum with five ridges: tegmina rounded at the apex; radial and exterior ulnar vein contiguous at the base itself, radial and interior ulnar vein forked at a more or less distance before the middle of the tegmina: feet moderate, single; last pair of tibiæ, 2—3-spinose (*Stål*).

39. OLIARUS WALKERI, Stål.

Cixius walkeri, Stål, Freg. Eug. Resa. Hem., p. 272 (1859).
Oliarus walkeri, Stål, Berlin Ent. Zeitschr. vi, p. 306 (1862).

♂. Obscurely testaceous; frons and feet testaceous-yellow: tegmina weak vinaceous-hyaline; veins concolorous, remotely punctured fuscous behind the middle; the five apical transverse veins clothed fuscous; stigma weak testaceous-yellow, inwardly narrowly fuscous: head yellow-testaceous; vertex almost twice as long as broad with two ridges running forwards from the middle, converging; frons with the oval clypeus narrowed at base and apex, a single forked ridge at the base itself: thorax very short, posteriorly angularly-sinuated, testaceous, with five ridges of a lighter colour of which the lateral pair diverge somewhat towards the apex: tegmina with the veins concolorous, fuscous at the apex; beneath with feet pale testaceous-flavescent; pectus black-fuscous (*Stål*). Long, 4; broad, $1\frac{1}{2}$ millims.

Reported from Malacca, Manilla.

40. OLIARUS BOHEMANI, Stål.

Cixius bohemani, Stål, Freg. Eug. Resa. Hem., p. 272 (1859).
Oliarus bohemani, Stål, Berlin Ent. Zeitschr. p. 306 (1862).

♂, ♀. Blackish: ridges on the head, incisures on abdomen and the tibiæ, pale testaceous-yellow, tegmina weak vinaceous hyaline, veins remotely punctured fuscous. Head blackish; vertex longer by half than broad with a less elevated longitudinal ridge and another transverse arched one behind the apex; frons and the oval clypeus with a single longitudinal ridge, forked at the base itself: thorax very short, testaceous yellow, posteriorly angularly-sinuated: scutellum blackish, somewhat parallel, with five ridges, of which the lateral pair converge somewhat at the base and apex: the tegmina twice as long as the abdomen, very weak fuscescent hyaline towards the apex; veins remotely punctured, fuscous at the apex; clavus with a median dot and obliquely behind it a dot also on the corium, fuscous: beneath black-fuscous: feet pale testaceous yellow, femora fuscous-testaceous (*Stål*). Long, $3\frac{1}{2}$; broad, $1\frac{1}{3}$ millims.

Reported from Hong-Kong.

Genus BRIXIA, Stål.

Ofvers. K. V.-A. Förh. xiii, p. 162 (1856); Freg. Eug. Resa, p. 276 (1859); Hem. Afric. iv, p. 166, 173 (1866): includes *Triopsis*, Sign., A. S. E. F. (3 sér.), viii, p. 187 (1860).

Head much narrower than the thorax; vertex narrow, compressed, narrower by half than the eyes, passing over into the frons which is long, gradually narrowed upwards, much compressed between the eyes, without a ridge, furnished with an ocellus at the apex; median ridge of clypeus less distinct, lateral margins carinated: eyes beneath sinuated: antennæ inserted beneath the eyes, first joint exserted, second longer than thick: thorax very short, angularly emarginated at the base: scutellum tricarinate: tegmina gradually somewhat amplified towards the apex; radial and exterior ulnar vein united near the base: feet moderate, simple; last tibiæ unarmed (*Stål*).

41. Brixia meander, Walker.

Cixius meander, Walker, List Hom. B. M. ii, p. 349 (1851).
Brixia meander, Stål, Ofvers. K. V.-A. Förh. p. 487 (1862).

Body tawny: frons long and narrow with a row of brown spots along each side of the disc which is also brown: rostrum tawny: eyes large: pronotum on both sides obliquely tricarinate: disc of the mesonotum brown: legs tawny, slightly sulcated: each femur with two brown rings: tegmina almost colourless, adorned with several waved brown bands which are partly confluent or interrupted, discs of the spaces between them occupied by paler brown bands: a large yellow spot on the anterior margin: veins pale stramineous, thickly dotted with black knots (*Walker*). Body long, 4¼; teg., 10½ millims.

Reported from India.

Genus Benna, Walker.

J. Linn. Soc. Zool. i, p. 90 (1856): Stål, Hem. Afric. iv, p. 166 (1866).

Body rather slender, head a little narrower than the thorax with a ridge which extends from the back of the vertex to the rostrum; sides also ridged; frons compressed, elongate-subfusiform: 1—2 joints antennæ a little shorter together than the breadth of the front; filament not long: thorax tricarinate, pronotum very short: abdomen at the base with two lateral capitate appendages like the halteres of *Diptera*, tip terminating in a long, curved oviduct: legs rather long and slender: tegmina and wings broad, rounded at the tips, the former with about twenty areolets, the discal generally shorter than the basal and marginal. (*Walker.*)

Frons with a longitudinal ridge narrowed upwards, scarcely distinguishable from the vertex: first joint of the antennæ prominulous, second longer than broad: abdomen furnished on both sides at the base with a long, filiform, clavate process: tegmina gradually amplified from the base towards the apex; the costal margin slightly sinuated towards the base; the radial and ulnar veins separately emitted from the ulnar trunk or somewhat contiguous at the base itself (*Stål*).

42. BENNA CAPITULATA, Walker.

Benna capitulata, Walker, J. Linn. Soc. Zool. i, p. 90, t. 3, f. 9, (1856).

♀. Testaceous: abdomen with long cottony secretions; capitate appendages with white tips: tegmina and wings hyaline, the former with a very slight testaceous tinge; veins brown, testaceous towards the base and in the front, with a black basal dot and two smaller brown dots near the base: the transverse veinlets partly clouded brown, a brown streak along the exterior border; stigma testaceous (*Walker*). Body long, 6¼; teg. 16½ millims.

Reported from Singapore.

Subfam. DELPHACINA, Stål.

Delphacida, Stål, Hem. Afric. iv, pp. 131, 175 (1866); *Delphacina*, Ofvers. K. V.-A. Förh., p. 747 (1870).

Distinguished by having the last pair of tibiæ furnished with a mobile spur (*Stål*).

Genus HYGYOPS, Guérin.

Ugyops, Guérin, Voy. Bél. Ind. Orient. p. 477 (1843); Spinola, A. S. E. F. viii, p. 321 (1839); Walker, List Hem. B. M. ii, p. 338 (1851): *Hygyops*, Stål, Hem. Afric. iv, p. 175 (1866): includes *Bidis*, Walker, J. Linn., Soc. Zool. i, p. 88 (1856): *Hygiops*, Am. & Serv., Hist. Nat. Ins. Hém. p. 511 (1843).

Antennæ inserted below the eyes, almost as long as the body; two first joints equal, cylindrical, with the filament inserted at the tip of the second joint, which is granulate; eyes very slightly emarginate beneath; apparently no ocelli: frons narrow, a little ascending, anteriorly much longer than broad, a little dilated in the middle, longitudinally grooved: rostrum as long as the head, covered at its base by a pointed, oblong labrum: pronotum narrower than the mesonotum, a little emarginate posteriorly: mesonotum triangular, apex pointing behind: tegmina narrower than the wings, oblong: abdomen flattered, feet long, spinose (*Guérin*).

43. HYGYOPS PERCHERONII, Guérin.

Ugyops percheronii, Guérin, Voy. Bél. Ind. Orient. p. 478 (1834); Icon. Règne Anim., t. 58, f. 16 (1830-34); Burm., Handb. Ent. ii (i), p. 152 (1835); Spinola, A. S. E. F. viii, p. 323 (1839); Walker, List Hom. B. M. ii, p. 338 (1851).
Hygiops percheronii, Am. & Serv., Hist. Nat. Ins. Hém. p. 512 (1843).

Ferruginous red, antennæ of the same colour, brown at the tip: tegmina and wings transparent, veins reddish: beneath and feet ferruginous (*Guérin*). Body long, 5; exp. teg., 16 millims.

Reported from Cochin China.

44. HYGYOPS NOTIVENA, Walker.

Bidis notivena, Walker, J. Linn. Soc. Zool. i, p. 88 (1856).
Hygyops notivena, Stål, Hem. Afric. iv, p. 175 (1866).

♂, ♀. Testaceous, partly green : tegmina and wings transparent, the former with a very slight testaceous tinge ; veins testaceous, here and there blackish : the ♂ partly red (*Walker*). Body long, 4¼ ; teg., 12½ millims.

Reported from Singapore, Malacca.

Subfam. ACHILINA, Stål.

Achilida, Stål, Hem. Afric. iv, pp. 130, 181 (1866) ; *Achilina*, Stål, Ofvers. K. V.-A. Förh., p. 748 (1870).

Head narrower than the thorax ; sides of the clypeus carinate : last joint of rostrum elongate : thorax angularly emarginate at the base : tegmina amplified inwards behind the clavus which is very rarely granulated, acute at the apex, distinctly closed ; the claval vein continued to the apex itself or united with the claval suture near the apex : last pair of tarsi with the first joint elongate.

Genus FAVENTIA, Stål.

Hem. Afric. iv, p. 181 (1866) ; Ofvers. K. V.-A. Förh., p. 748 (1870).

Head narrower than the thorax ; frons with a long and clypeus with a distinct ridge running through it, the lateral ridges on the clypeus not united at the apex : thorax very short, angularly emarginate at the base : scutellum tricarinate : tegmina roundly truncated at the apex ; the interior ulnar and the radial vein forked before the middle : first tibiæ longer than the femora and trochanters taken together, the last pair unispinose (*Stål*). Type, *C. pustulatus*, Walker.

45. FAVENTIA PUSTULATA, Walker.

Cixius pustulatus, Walker, J. Linn. Soc. Zool. i, p. 87 (1856).
Faventia pustulata, Stål, Berlin Ent. Zeitschr. x, p. 392 (1866).

Tawny, testaceous beneath : head greenish, with a black dot on each side, ridges ferruginous : tegmina with some paler marks and with many minute blackish dots which are accompanied by 2—3 larger and darker dots : wings brown (*Walker*). Body long, 6¼ ; teg., 14½ millims.

Reported from Singapore.

Genus HELICOPTERA, Amyot & Serville.

Hist. Nat. Ins. Hém. p. 526 (1843) ; Stål, Hem. Afric, iv, pp. 181, 184 (1866) : includes *Elidiptera*, Spin., A. S. E. F. viii, p. 504 (1839) ; Walker, List Hom. B. M. ii, p. 328 (1851).

Body depressed: head much narrower than the thorax, produced before the eyes; vertex posteriorly about twice as broad as the eyes, somewhat concave, not ridged; frons much longer than broad, distinctly narrowed upwards, more or less distinctly ridged in the middle; sides of clypeus ridged: eyes rounded, obsoletely sinuated beneath: second joint of the antennæ somewhat globose: thorax tricarinate, lateral ridges not reaching the base: scutellum tricarinate: tegmina rounded at the apex; the radial and exterior ulnar veins united at the base; radial and exterior ulnar vein forked rather far from the base: feet moderate, first tibiæ subequal in length to the femora and trochanters taken together; last tibiæ unispinose (*Stål*).

46. HELICOPTERA ? SMARAGDILINEA, Walker.

Elidiptera smaragdilinea, Walker, J. Linn. Soc. Zool. i, p. 86 (1856).

Ferruginous: head about the eyes and on each side of the frons, a spot in the middle of the pronotum and one on each side and a stripe on the mesonotum, emerald-green: cephalic protuberance, slender, cylindrical ascending, black above, green beneath, about twice the length of the head above; frons long and narrow; face and pectus black and white: abdomen with a green stripe on each side and a black stripe on each side beneath: legs tawny, femora black at the base; tibiæ and tarsi partly green; fore tibiæ white towards the tips: tegmina and wings limpid, the former with a narrow brown streak along the terminal part of the costa, and with a broad brown streak along the corresponding part of the hind border, the two streaks connected by a brown streak along the transverse veinlets (*Walker*). Body long, 9½: teg., 23 millims.

Reported from Mount Ophir, Singapore.

Subfam. TROPIDUCHINA, Stål.

Tropiduchida, Stål, Hem. Afric. iv, p. 130, 186 (1866): *Tropiduchina*, Ofvers. K. V.-A. Förh., p. 748 (1870).

Head narrower than the thorax; sides of clypeus without a ridge or with an obtuse ridge: thorax very often angularly emarginate at the base, very rarely roundly sinuate, tricarinate; lateral ridges diverging, very often reaching the base; commisural margin of tegmina straight or rounded behind the clavus which is generally as in *Achilina;* costa sometimes dilated, costal membrane transversely veined; first joint of last tarsi elongate (*Stål*).

Genus DARADAX, Walker.

J. Linn. Soc. Zool. i, p. 85 (1856) ; Stål, Hem. Afric. iv, p. 188 (1866).

Head lanceolate, ascending, carinate on both sides ; frons lanceolate, with a median and lateral ridges : antennæ globose, very minute, setiform filament moderately long, very slender : pronotum much arched with a slight median ridge, each side forming a fusiform compartment : mesonotum quadricarinate : tegmina fusiform, with numerous parallel equidistant veinlets along the costa ; ulnar areas long ; apical areas short, like those of the costa (*Walker*).

47. DARADAX FUSIPENNIS, Walker.

Daradax fusipennis, Walker, J. Linn. Soc. Zool. i, p. 86 (1856).

Green, partly lutescent : tegmina with brown dots along the exterior margin : wings white (*Walker.*) Body long, 6¼ ; teg., 14½ millims.

Reported from Malacca.

Genus TROPIDUCHUS, Stål.

Ofvers. K. V.-A. Förh. p. 248 (1854) ; Hem. Afric. iv, p. 188 (1866) : includes *Euria*, Walker, J. Linn. Soc. Zool. i, p. 87 (1856).

Body oblong : head somewhat narrower than the thorax, slightly prominulous before the eyes, obtuse : vertex arcuate, transverse, much broader than the eyes, deeply sinuated at the base, rounded at the apex ; frons much longer than broad, somewhat narrowed upwards, with 1 or 3 ridges ; clypeus with a median ridge, sides convex or obtusely ridged : rostrum somewhat short : second joint of the antennæ small, subglobose : thorax short, angularly emarginate at the base, tricarinate on the disc : scutellum tricarinate : tegmina not or but slightly narrowed towards the apex ; costa remote from the margin, emitting outwards numerous transverse veins, radial and ulnar veins forked rather distant before the middle and at an equal length from the base ; apical part with two rows of transverse veins : feet moderate ; first tibiæ somewhat longer than the femora and trochanters taken together, last tibiæ trispinose (*Stål*).

48. TROPIDUCHUS LURIDUS, Walker.

Euria lurida, Walker, J. Linn. Soc. Zool. i, p. 88 (1856).

Brownish, paler beneath : head green with tawny ridges : tegmina and wings lurid, the former with four brown bands of which the first and second are dilated in front, the third is slender, curved, joined at each end to the second, the fourth is marginal : wings with three brown bands (*Walker.*) Body long, 5¼ ; teg., 14½ millims.

Reported from Singapore.

Genus ELICA, Walker.

J. Linn. Soc. Zool. i, p. 86 (1856).

Head conical, slightly ascending, tricarinate above: frons lanceolate, tetragonal, tricarinate, the lateral ridges curved, margins also ridged: antennæ conical, setiform filament twice as long as the preceding part: pronotum very short: mesonotum tricarinate: tegmina broad with numerous transverse veinlets along the costa; ulnar areas elongate towards the base of the tegmina; apical areas more numerous, short, and generally 5—6 angled (*Walker*).

49. ELICA LATIPENNIS, Walker.

Elica latipennis, Walker, J. Linn. Soc. Zool. i, p. 86 (1856).

Testaceous, partly tawny: head above and disc of the thorax, brown: tegmina hyaline with a slight testaceous tinge; veins tawny, some of them black, forming an irregular, incomplete band (*Walker*). Body long, 7¼; teg., 19 millims.

Reported from Malacca.

Genus MONOPSIS, Spinola.

A. S. E. F. viii, p. 302 (1839); Amyot & Serville, Hist. Nat. Ins. Hém. p. 507 (1843); Walker, List Hom. B. M. ii, p. 325 (1851).

Cephalic prolongation flattened above, ovally rounded anteriorly; the flat portion of the vertex has a median ridge dividing into two lines posteriorly which form a very pointed arch placed above another arch on the pronotum; frons broad with a median and two lateral ridges: eyes large, oblong: pronotum very narrow, emarginate posteriorly in an arch; mesonotum with three elevated lines: tegmina slightly crystalline and transparent almost as in the genus *Dichoptera;* the great basal half with long cells, then comes a small elevated transverse line and then a great number of small and more or less quadrate cells: abdomen rather flat and oblong: feet moderate (*Am. & Serv.*).

50. MONOPSIS VIRIDICANS, Stål.

Monopsis viridicans, Stål, Freg. Eug. Resa. Ins., p. 281 (1859).

♀. Weakly virescent: vertex nearly semicircularly produced before the eyes; frons one and half time longer than the breadth, carinated; thorax somewhat longer than the vertex, roundly produced anteriorly, tricarinate, the lateral ridges oblique: scutellum tricarinate, the lateral ridges somewhat divergent towards the base, parallel, nearly three and half time longer than the breadth (*Stål*). Long with teg., 7 millims.

Reported from Hong-Kong, Sikkim (?).

51. MONOPSIS (?) SINICA, Walker.

Monopsis sinica, Walker, List Hom. B. M. ii, p. 327 (1851).

♀. Body fusiform, yellowish-green: head and thorax tawny above, the former surrounded by a bright green ridge on each side and in front and with three others of which the lateral pair do not extend beyond the disc from the hind border: pronotum with three bright green ridges, the side pair oblique, longer than the median one: rostrum and legs pale yellowish-green: feet tawny; hind tibiæ between the middle and the tips, with three spines having black tips: tegmina and wings colourless, the basal part of the former pale green, occupying two-thirds of the surface, covered with little tawny tubercles, very distinct from the reticulated part; veins green. Body long 3½; exp. teg., 10½ millims.

Reported from Hong-Kong.

Genus HIRACIA, Walker.

J. Linn. Soc. Zool. i, p. 154 (1857).

Body elliptical convex: head with the borders hardly elevated; vertex conical, distinctly tricarinate; frons and face indistinctly tricarinate, the former obconical, excavated next the face which is lanceolate: pronotum full twice broader than long, narrower in front, 5-carinate; mesonotum triangular, acuminate, tricarinate: tegmina acuminate with numerous rugulose veins and transverse veinlets (*Walker*).

52. HIRACIA WALKERI, Signoret.

Hiracia walkeri, Signoret, A. S. E. F. (4 sér.) i, p. 57, t. 2, f. 3 (1861).

Yellowish-grey with two black patches on the tegmina: head weakly angular in front with a median keel on the frons: vertex grooved with the margins strongly carinated, posterior margin concave: pronotum angular, rounded in front, furnished with a great number of small tubercles along the anterior margin and on its disc and a median transverse impression: scutellum weakly tricarinate: tegmina with veins without anastomoses but faintly reticulated in the intervals, a median triangular black spot towards costal margin and an oblong spot behind towards the internal margin; abdomen yellowish, shorter than the tegmina; feet yellow, very long; posterior tibiæ furnished on the external sides with seven spines, a character which serves to separate this species from *H. ignava*, Walker, from Borneo (*Sign.*). Body long, 7; broad, 3 millims.

Reported from India.

Subfam. DERBINA, Stål.

Derbida, Hem. Afric. iv, pp. 130, 192 (1866); *Derbina*, Ofvers. K. V.-A. Förh. p. 750 (1870).

Head very often narrower than the thorax: sides of clypeus sometimes carinated: last joint of rostrum short or very short; thorax posteriorly angularly-emarginate, ecarinate or furnished with an obsolete ridge: costa simple; clavus generally as in *Achilina*: last tibiæ very often unarmed, rarely spinose; first joint of last tarsi, elongate (*Stål*).

Genus PHENICE, Westwood.

Trans. Linn. Soc. xix, p. 10 (1845); Stål, Ofvers. K. V.-A. Förh. p. 163 (1856); Hem. Afric. iv, pp. 192, 195 (1866). Amyot & Serville [Hist. Nat. Ins. Hém. p. 515 (1843)] unite *Phenice* with *Derbe*, Fabr. for reasons given; the remainder of the species described are chiefly African.

Body oval: head much narrower than the thorax, seen from the side, more or less rounded anteriorly, slightly compressly prominulous before the eyes; vertex and frons very narrow, the latter linear with the lateral margins sometimes contiguous; clypeus long, tricarinate: eyes posteriorly sinuate beneath, extended to a distance downwards: no ocelli: second joint of the antennæ varying in length, oval or a little elongate, without a sinus at the apex above: last joint of rostrum very minute: thorax short, posteriorly deeply angularly-emarginate: scutellum obsoletely tricarinate: tegmina elongate, gradually amplified from the base to the middle, thence somewhat narrowed or furnished with parallel sides, much longer than the wings; clavus short; radial vein forked, ulnar vein emitting inwards obliquely longitudinal branches towards the commissural margin, these branches united by a transverse vein: feet slender, last tibiæ sometimes spinose (*Stål*).

53. PHENICE MŒSTA, Westwood.

Derbe (Phenice) mœsta, Westwood, A. M. N. H. (2 sér.) vii, p. 209 (1851).
Derbe mœsta, Walker. List Hom. B. M. ii, p. 397 (1851).
Phenice mœsta, Stål, Ofvers, K. V.-A. Förh. p. 750 (1870).

Black, variegated white: a narrow frontal ridge on the head and the penultimate joint of the rostrum, whitish: three very fine ridges on the mesonotum and the posterior margin broader in the middle, white: feet white: tegmina black, costa and last half spotted white: wings smoky: lateral anal appendages in ♂, straight, incurved at the apex and acuminate (*Westwood*). Exp. teg., 13½ millims.

Reported from India.

54. PHENICE CARNOSA, Westwood.

Derbe (Phenice ?) carnosa, Westwood, A. M. N. H. (2 sér.) vii, p. 209 (1851).

Entirely luteous flesh-coloured; four anterior tibiæ, fuscous: tegmina and wings yellowish hyaline, costal margin behind the middle of the tegmina and external margin of the wings, fuscous, the latter with a median black dot: apical joint of rostrum, black: anal appendages in ♂, elongate, curved, forcipate: abdomen in ♀ terminated by two porrect horns (*Westwood*). Exp. teg., 14½ millims.

Reported from India.

Subfam. LOPHOPINA, Stål.

Lophopida, Stål, Hem. Afric. iv, pp. 130, 199 (1866).

Head narrower than thorax, sides of clypeus carinate; rostrum short, stout, last joint very short; thorax truncate at the base, carinated or tuberculated on the disc; first joint of last tarsi robust, less long. Differs from the *Tropiduchina* in having the thorax truncated at the base, the last joint of the tarsi very short and the basal joint of last tarsi stoutish short or somewhat shortish: from the *Issina* in having the thorax distinctly tricarinated or tuberculated on the disc, the tegmina rather ample, flat, and extending much beyond the apex of the abdomen and from the *Ricaniina* in having the thorax truncated at the base, disc distinctly carinated or tuberculated and last joint of rostrum very short (*Stål*).

Genus LACUSA, Stål.

Berlin Ent. Zeitschr. vi, p. 309 (1862); Hem. Afric. iv, p. 199 (1866).

Head somewhat narrower than the thorax; vertex not produced, somewhat transverse, lateral margins not dilated; frons elongate, furnished with two ridges converging upwards; clypeus carinate in the middle and on both sides: thorax truncated at the base, rounded anteriorly behind the vertex, tricarinate: scutellum tricarinate: tegmina rather ample, costal and commissural margins parallel, broadly rounded at the apex, costal limbus obliquely, transversely veined: anterior feet much dilated, foliaceous: last tibiæ trispinose, gradually slightly dilated towards the apex (*Stål*). Allied to *Elasmoscelis*, but distinct in the structure of the head.

55. LACUSA FUSCOFASCIATA, Stål.

Elasmoscelis (?) fusco-fasciata, Stål, Ofvers. K. V.-A. Förh. p. 248 (1854).
Cixius eminens, Walker, Ins. Saund. Hom. p. 42 (1858).
Lacusa fusco-fasciata, Stål, Berlin Ent. Zeitschr. vi, p. 309 (1862).

♂ Black-fuscous: head, thorax, scutellum, rostrum, and tarsi testaceous-whitish, frons and scutellum infuscate: tegmina and wings vitreous; three bands on the tegmina, the posterior two oppositely oblique and united at the commissure, confluent spots on the apex, small transverse lines on the costal limbus and dots sprinkled over the disc, black-fuscous; wings internally and at the apex broadly fuscescent; feet sparingly sprinkled pallid (*Stål*). Body long, 5½; exp. teg., 16½ millims.

Reported from India.

Genus Corethrura, Hope.

Trans. Linn. Soc. xix, p. 135 (1845); Stål, Hem. Afric. iv, p. 200 (1866).

Body short, stout: the apex of the abdomen furnished with a very large and well-marked floccose appendage: head carinate in front: face seen in front narrow: rostrum of median length: clypeus large, inflated: antennæ inserted beneath the eyes, very short, setose to some length at the apex: ocelli minute placed a little before the eyes: first pair of feet with depressed tibiæ, last tibiæ externally tridentate (*Hope*).

56. Corethrura fuscovaria, Hope.

Corethrura fusco-varia, Hope, Trans. Linn. Soc. xix, p. 135, t. 12, f. 60 (1845); Walker, List Hom. B. M. ii, p. 395 (1851).

Body above somewhat fuscous; head with a whitish transverse line, three rows of white spots on the thorax: abdomen fuscous-green, extremity provided with a subochraceous cottony appendage longer than the entire body: tegmina varied with fuscous, having numerous interrupted bands of a more saturated colour and patches of a farinose powdery substance: wings paler brownish, hyaline, immaculate (*Hope*). Body long, 19; exp. teg., 58-59 millims.

Reported from Silhat.

Subfam. Issina, Stål.

Issida, Stål, Hem. Afric. iv, pp. 130, 202: *Issina*, Ofvers. K. V.-A. Förh. p. 754 (1870).

Head not or only a little narrower than the thorax; clypeus very often convex, lateral margins very rarely furnished with a ridge; thorax truncated at the base, rarely broadly roundly-sinuated, without a median ridge or only an obsolete one; scutellum short, rarely twice longer than the thorax: tegmina coriaceous or subcorneous, rarely vitreous, very rarely flat, more or less convex, sometimes very much abbreviated: clavus and claval vein generally as in *Achilina*: first joint of last tarsi short or moderate very rarely elongate. Differs from *Ricaniina* in the thorax being truncated or slightly sinuated at the base, scutellum short never more than twice as long as the thorax; tegmina very ample, very often convexish, not or but little extending beyond the abdomen (*Stål*).

Genus HEMISPHÆRIUS, Schaum.

Allg. Enc. Wissensch. Kunst. i, p. 51, (1850): Stål, Hem. Afric. iv, p. 203 (1866).

Last joint of rostrum longer than stout, oval, oblong or elongate: tegmina entirely convex, very obsoletely veined or without veins, clavus and corium connate, no claval suture: body depressed; vertex narrower than the eyes or subequal in breadth; thorax truncated at the base, sinuated behind the eyes, sides behind the eyes hardly visible from above; last tibiæ bispinose: anterior femora simple (*Stål*). This beautiful genus has the entire tegmina quite coriaceous like those of the lady-bird beetles.

57. HEMISPHÆRIUS RUFOVARIUS, Walker.

Hemisphærius rufovarius, Walker, List Hom. B. M. Suppt. p. 95 (1858); Butler, A. M. N. H. (5 sér.) xvi, p. 96 (1875).

Testaceous: vertex transverse with a red mark on the disc, frons and face flat; frons with a red disc, face black, lanceolate: pronotum with three minute red marks: mesonotum with a red stripe on each side: abdomen with a black band beneath: tegmina rather narrower and more oblong than in the other species of the genus (*Walker*). Body long, 3½; teg., 8½ millims.

Reported from Burma.

Genus FLAVINA, Stål.

Ofvers. K. V.-A. Förh. xviii, p. 209 (1861); Hem. Afric. iv, p. 206 (1866).

Wings cleft, fairly ample, irregularly reticulated; head distinctly narrower than the thorax, vertex subquadrate; frons slightly rounded a little above the clypeus on both sides, longer than broad; clypeus ecarinate; thorax truncated at the base, angulated anteriorly behind the vertex; scutellum somewhat longer than the thorax, tegmina extending somewhat beyond the abdomen, the costa and the commissure subparallel, gradually roundly-narrowed at the apex; the principal exterior vein near the base, the median vein towards the apex and interior vein before the middle, forked, the two last united before the middle by a more distinct transverse veinlet, the interior branch of the fork of that vein also forked: last tibiæ 5-spinose (*Stål*).

58. FLAVINA GRANULATA, Stål.

Flavina granulata, Stål, Ofvers. K. V.-A. Förh. xviii, p. 212 (1861).

♀. Weakly yellow-testaceous; tegmina sparingly sprinkled fuscous, extreme part of angles of vertex and basal angles of frons, fuscous; frons scarcely twice as long as its median breadth, furnished with a median ridge obliterated near the clypeus and a small subbasal, transverse, angulated ridge; thorax granulate; scutellum unicarinate; anterior tibiæ with two broadly, weakly fuscous rings (*Stål*). Long with teg., 8 millims.

Reported from India.

Genus EUPILIS, Walker.

J. Linn. Soc. Zool. i, p. 93 (1856); Stål, Hem. Afric. iv, p. 207 (1866); Berlin Ent. Zeitschr. x, p. 393 (1866); Ofvers. K. V.-A. Förh., p. 760 (1870).

Body very oblong: clypeus transversely convex before the middle, not compressly elevated: tegmina membranous, vitreous, very oblong, scarcely gradually amplified towards the apex, obtusely rounded at the apex; exterior branch of the radial vein running out at the costa or sending out a short branch to the costa; claval veins united almost in the middle of the clavus; wings emarginate at the apex, with two veins running towards the apical incisure united towards the apex: last tibiæ bispinose behind the middle (*Stål*).

59. EUPILIS ALBILINEOLA, Walker.

Eupilis albilineola, Walker, J. Linn. Soc. Zool. i, p. 93 (1856); p. 162 (1857).

♀. Testaceous, partly pale-green: frons black, shining, with a tawny central spot and with a testaceous border: face with two black bands, the anterior one macular: thorax and pectus with black spots: abdomen with black bands: tegmina and wings transparent, veins black; the tegmina slightly lurid with five brown streaks; transverse veinlets, white (*Walker*). Body long 8¼; teg., 25 millims.

Reported from Singapore.

Genus TEMPSA, Stål.

Hem. Afric. iv, p. 208 (1866); Ofvers. K. V.-A. Förh. p. 761 (1870).

Body oblong, somewhat cylindrical: head and thorax somewhat equal in breadth, the former obtuse: vertex subequal in breadth to the eyes, truncated, transverse, not produced before the eyes; clypeus transversely convex before the middle, not compressly elevated, sides without a ridge: frons somewhat longer than broad, narrowed upwards, with a longitudinal ridge: thorax anteriorly angulated, truncated at the base;

scutellum longer by more than half than the thorax: tegmina oblong somewhat narrowed towards the apex, obliquely truncated at the apex; coriaceous, somewhat opaque or slightly pellucid; interior ulnar vein simple or forked at a greater distance from the base than the exterior ulnar vein; exterior branch of the radial vein continued towards the apex of the corium, emitting no branch to the costa; claval veins united behind the middle of the clavus; wings broad, with two veins running towards the apical incisure united towards the apex: last tibiæ bispinose behind the middle (*Stål*).

60. TEMPSA MALAYA, Stål.

Issus malayus, Stål, Ofvers. K. V.-A. Förh., p. 246 (1854).
Eupilis malaya, Stål, Freg. Eng. Resa Ins., p. 277 (1858).
Tempsa malaya, Stål, Berlin Ent. Zeitschr. x, p. 393 (1866).

♂. Elongate, sordid flavescent, obscurely spotted: frons tricarinate the median ridge distinct, continued through, the lateral ridges obsolete, two spots in the middle and four spots on the scutellum, black-fuscous: tegmina elongate, subparallel, longer than the abdomen, somewhat ferruginous, costal margin of a weaker colour. Head sordid flavescent, obscurely spotted, at the apex before the eyes a little truncately produced, vertex quadrate, with a transverse somewhat arched ridge at the apex; frons one-third narrower than its length, very broad towards the apex, gradually somewhat narrowed towards the base, tricarinate, the median ridge continued through, distinct, the lateral ridge obsolete, converging much towards the base, confluent at the base, in the middle on both sides at the median ridge, fuscous: thorax as long as the vertex, triangularly produced, fuscous-flavescent, somewhat impressed lengthwise: scutellum scarcely twice as long as the thorax, obsoletely tricarinate, sordid flavescent, with four small fuscous spots: tegmina extending beyond the abdomen, thrice as long as the median breadth, gradually a little amplified from the base, thence scarcely gradually amplified, obliquely subtruncate at the apex, with longitudinal veins, veins robust, remotely united by other less distinct transverse veins; with a ferruginous tinge, costal margin weak testaceous-flavescent, subhyaline: wings sordid hyaline with fuscous veins, as long as the tegmina: beneath with feet, weak sordid flavescent (*Stål*). Long with teg., 9; broad, 3½ millims.

Reported from Malacca, Singapore.

Genus TETRICA, Stål.

Hem. Afric. iv, p. 208 (1866).

Body oval or suboblong: frons subtruncate at the apex, narrowed upwards, unicarinate; last joint of rostrum oblong or subelongate; thorax and scutellum together, transverse, the former truncated at the base, anteriorly obtusely angulated, the latter about twice longer than the thorax: tegmina slightly narrowed behind the middle, at the apex very obtusely rounded; corium a little longer than the clavus; radial vein of tegmina forked at the base, ulnar veins forked in the middle or a little before the middle: wings very broad, deeply emarginate at the apex: last tibiæ bispinose: first joint of last tarsi rather short. Head and thorax equally broad, the former not prominulous before the eyes, vertex transverse, subequal in breadth to the eyes; frons equally long and broad, amplified near the apex: sides of clypeus furnished with a ridge: body a little compressed (*Stål*). Type, *T. fusca*, Stål.

61. TETRICA FUSCA, Stål.

Tetrica fusca, Stål, Ofvers. K. V.-A. Förh. p. 757, note, (1870).

♂. Fuscous, subcompressed, feet pallescent: corium and clavus obsoletely sprinkled pale on the disc: vertex twice broader than long: frons nearly equally long and towards the apex broad, furnished with a single, distinct, obtuse ridge running through it, continued through the clypeus: tegmina somewhat broadish, gradually a little amplified from the base scarcely to the middle, thence distinctly narrowed (*Stål*). Long with teg., 5½ millims.

Reported from Burma.

Species of doubtful position.

62. ISSUS (?) PECTINIPENNIS, Guérin.

Issus pectinipennis, Guérin, Voy. Bélanger Ind. Orient. p. 475 (1834); Spin., A. S. E. F. viii, p. 347 (1839): Walker, List Hom. B. M. ii, p. 362 (1851).

Luteous spotted with black: head transverse, anteriorly trispinose, one obtuse point in front of each eye and one forming a prolongation of the frons: tegmina anteriorly dilated, luteous or ochraceous-yellow, with some small tubercles and short transverse streaks, black; wings brunneous: body beneath yellow, variegated with black; feet flavescent. The anterior margin of the tegmina is spinose; it comprises a limbus outside the radius as broad as the external flap of the wing, about half a line, transparent, vitriform, or like an exceedingly fine plate of talc, furnished throughout with oblique veins (parallel to each other) contrasting in colour and substance with that of the limbus itself. These veins when the limbus is injured stand out like the teeth of a comb and give a peculiar appearance to the insect. The frons is ascending and is divided from the base to the upper margin into three facettes which form between them obtuse angles; the median increases from below upwards and reaches the vertex and is divided by a longitudinal ridge which descends from above and loses itself towards the middle of the frons; the two interior facettes rise a little higher than the median but without converging above it; they bend outwards and end in an acute and prominent point above the eyes. The vertex is broader than long, concave, margins gently raised, anterior bisinuate, posterior weakly emarginate. Median lobe of pronotum broad, rounded. Long, 10; exp. teg., 23 millims.

Reported from Bengal.

63. Issus (?) TESTUDINARIUS, Stål.

Issus testudinarius, Stål, Ofvers. K. V.-A. Förh., p. 246 (1854).

Obscurely ferruginous: frons with a longitudinal ridge in the middle and a transverse one at the base: tegmina coriaceous, longitudinal veins elevated: beneath and feet yellow-testaceous: entire anterior femora and last pair at the apex, fuscescent: abdomen, fuscous in the middle (*Stål*). Long, 8; broad, 6 millims.

Reported from Penang.

Genus CYRENE, Westwood.

Arc. Ent. ii, p. 35 (1843).

Body short, stout, abdomen compressed: head with frons conical, long, porrect, acute at the apex, carinate above at the sides, ridges obliterated before the apex, posteriorly extended to the pronotum: eyes large, lateral, emarginate beneath: no ocelli: antennæ small, inserted below the eyes: pronotum as long as the mesonotum, disc impressed in the middle with two points: tegmina coriaceous, opaque, homogeneous, convex, broad; anterior margin sinuate, rounded at the apex, posterior angle, acute; veins little branched: feet short, robust, last tibiæ curved, armed inwards towards the apex with three spines: abdomen truncated at the apex, ending in two lobes, furnished with a slender, erect appendage, concave at the apex (*Westwood*). The entire surface of the tegmina is covered with an immense number of minute, circular, elevated areas, visible only under the lens and which give it a shagreened appearance: when at rest the tegmina are carried almost perpendicularly.

64. CYRENE FUSIFORMIS, Walker.

Cyrene fusiformis, Walker, List Hom. B. M. Suppt. p. 47 (1858).
Chalepus aconophoroides, Walker, l. c. p. 192 (1858).

♂, ♀. Testaceous: head produced in a lanceolate horn which is straight, hardly ascending, a little longer than the thorax and has three slight ridges above and beneath: tegmina very convex in front, straight along the interior border, very acute at the tips, with several indistinct, ramified brown marks, veins few: wings vitreous, tinged with grey, a testaceous tinge towards the base; veins few, pale (*Walker*). Body long 10½-12½; teg. 19-23 millims.

Reported from N. China, India: the Indian Museum has a specimen from Sikkim.

65. CYRENE WESTWOODI, Signoret.

Cyrene westwoodi, Signoret, A. S. E. F. (4 sér.) ii, p. 124, t. 1, f. 5, A. B. C. (1862).

Brown yellow: a whitish-yellow line extends from the tip of the head to the end of the tegmina which have several dots of the same colour on the disc and are granulate through the whole length so as to have the appearance of being shagreened: head once and half longer than broad, including the eyes, black at the extremity and with a whitish yellow median band, a little elevated; sides carinate: frons concave at the base and grooved, quadricarinate towards its upper third; the two median ridges reaching the extremity of the head; whereas the two lateral ridges proceed obliquely upwards, contour the head and lose themselves in the lateral ridges of the vertex towards its upper third: rostrum short not extending beyond the posterior coxæ: eyes not emarginate, oval. Pronotum thrice broader than long, rugose, especially towards the anterior and posterior borders with an elevated whitish yellow band and on each side a sunken spot; posterior margin truncated straightly, anterior convex with a strong emargination below the eyes: mesonotum triangular and remarkable for a ridge or rather transverse fold near the anterior margin and very distinct from it this fold appears a little below the latter and extends from one humeral angle to the other and also a little below. Tegmina concave, shell-shaped, with the posterior angle acute, the anterior margin convex, rounded, a little concave on reaching the posterior angle, posterior or sutural margin straight and whitish, the entire surface shagreened; veins numerous and branched towards the tip, several whitish dots on the disc: wings transparent hyaline: abdomen reddish yellow, compressed: feet brown-yellowish; posterior femora with two lateral spines towards the extremity (*Sign.*). Body long, 14; teg. extended, 22 millims.

Reported from Cochin-China, Burma (?).

Subfam. RICANIINA, Stål.

Ricaniida, Stål, Hem. Afric. iv, p. 131, 219 (1866); *Ricaniina*, Ofvers. K. V.-A. Forh., p. 765 (1870).

Head broad or very broad, sometimes somewhat narrower than the thorax; sides of clypeus very often without a ridge; thorax posteriorly roundly sinuated, without ridges or furnished only with an obsolete median ridge: scutellum very large, long: tegmina flat, ample or very ample, costa dilated; costal membrane transversely veined or reticulated: last tibiæ spinose; first joint of last tarsi short or shortish. Differs from *Tropiduchina* in having the thorax without discoidal ridges or only with a single rather obsolete one and the first joint of the last tarsi being short or shortish *(Stål)*.

Genus RICANIA, Germar, Stål.

Mag. Ent. iii, p. 221 (1818); Stål, Hem. Afric. iv, p. 221 (1866): Fieber, Rev. Mag. Zool. (3 sér.) ii, p. 342 (1875).

Germar formed this genus from *Flata*, Fabr., taking the Indian species *R. hyalina*, Fabr., as his type with the following description:—'Head short, transverse: frons lower, subovate, margined on the sides: clypeus annexed to the apex of the frons, conical, subulate at the apex: labrum concealed; rostrum shorter than half the body: eyes globose, pedunculate above: ocelli inserted on the lower margins of the eyes: antennæ distant from the eyes, short, first joint minute, cylindrical, second short, thicker at the apex, obliquely truncated, setigerous.' This was subsequently reduced by the creation of several genera which Stål reviews, absorbing some, and making other sections or subgenera.

Stål includes in *Ricania* his own genus *Scolypopa* (Berl. Ent. Zeitschr. iii, p. 325, 1859) and gives the following diagnosis of the genus:—

Body very broad, not prominent before the eyes anteriorly truncate or obtusely rounded: vertex very broad, short; frons transverse or equally long and broad, very often keeled; sides of clypeus without a ridge: thorax slightly arched, very often furnished with a fine ridge in the middle: scutellum furnished with three ridges running through it and anteriorly on both sides with an abbreviated ridge: tegmina varying in form and size, very often triangular and very ample; basal tegula large or somewhat largish; two veins emitted from the base of the clavus united in the middle or behind the middle of the clavus: wings moderate or small, anal area furnished with a simple vein: feet moderate, simple; last tibiæ very often bispinose, very rarely trispinose.

The principal divisions or subgenera are:—

1. *Pochazia*, Am. and Serv. Hist. Nat. Ins. Hém. p. 528 (1843); which includes *R. fasciata*, Fabr., and various African and Indian species.

2. *Tarundia*, Stål, Berlin Ent. Zeitschr. iii, p. 325 (1859) and Rio Jan. Hem. ii, p. 70 (1862); which includes several species from Africa and the Indian Archipelago.

3. Represented by *R. quinquefasciata*, Stål, from Africa.

4. *Mulvia*, Stål, formerly represented by African species.

5. *Deraulax*, Signoret, A. S. E. F. (3 sér.) viii, p. 191 (1860); type *D. versicolor*, Sign. [*l. c.*], from Madagascar.

6. *Pocharica*, Signoret, *l. c.*, p. 192 (1860); type, *P. ocellata*, Sign., [*l. c.*, p. 192 (1860)], from Madagascar.

7. *Pochazoides*, Signoret, *l. c.*, p. 193 (1860); type, *P. maculatus*, Sign. [*l. c.*, p. 193 (1860)], from Madagascar.

8. *Privesa*, Stål, Rio Jan. Hem. ii. p. 70 (1862); type, *R. lævifrons* Stål [Stettin Ent. Zeit. xxii, p. 151 (1861)], from Mozambique.

Out of the eight subgenera, the Indian species, hitherto recorded, fall under the first two and principally under the first, *Pochazia*.

66. RICANIA HYALINA, Fabricius.

Cercopis fenestrata, Fabricius, Syst. Ent. p. 688 (1775); Stoll, Cig. p. 75, t. 19, f. 102 (1788).

Cicada hyalina, Fabr., Syst. Ent. App. 832 (1775); Spec. Ins. ii, p. 326 (1781); Mant. Ins. ii, p. 272 (1787); Ent. Syst. iv, p. 40 (1794).

Flata hyalina, Fabr. Syst. Rhyng. p. 51 (1803).

Ricania hyalina, Germar, Mag. Ent. iii, p. 224 (1818); Burm., Handb. Ent. ii (i) p. 161 (1835).

Flatoides hyalina, Walker, List Hom. B. M. ii, p. 404 (1851).

Flatoides orientis, Walker, l. c., p. 417 (1851).

Ricania fenestrata, Stål, Ofvers. K. V.-A. Förh. p. 489 (1862); Hem. Fabr. ii, p. 105 (1869).

Body small, entirely ferruginous-fuscous: tegmina broad of the same colour, with an abbreviated, broad, hyaline band in the middle, behind the band two small hyaline spots and the posterior margin, interrupted in the middle, hyaline: wings fuscous, immaculate (*Fabr.*).

Fabricius (in Spec. Ins. l. c.) abandons the name '*fenestrata*' first given by him to this species which was evidently based on an error both of description and in the locality (S. America) assigned to the species. The rectification of the author should be accepted, especially as he gives the name '*fenestrata*' subsequently (Syst. Rhyng. p. 51) to a different species. This is Germar's type of the genus. Long, 5¼; teg., 16¼ millims?

Reported from Ceylon, India; the Indian Museum possess a specimen from Calcutta (?).

67. RICANIA FENESTRATA, Fabricius.

Flata fenestrata, Fabr., Syst. Rhyng. p. 51 (1803).

Flatoides fenestrata, Walker, List Hom. B. M. ii, p. 404 (1851).

Ricania Fabricii, Stål, Hem. Fabr. ii, p. 104 (1868).

Stature entirely of *R. hyalina*, Fabr., but smaller: body black: tegmina fuscous, hyaline at the base, spot on the anterior margin and punctures, fuscous; in the middle a broad oblique hyaline band and numerous spots, hyaline: entire wings obscure hyaline (*Fabr.*). Allied to *R. mellerborgi*, Stål.

Reported from Java.

68. RICANIA MELLERBORGI, Stål.

Ricania mellerborgi, Stål, Ofvers. K. V.-A. Förh. xi, p. 247 (1854).
Flatoides discalis, Walker, J. Linn. Soc. Zool. i, p. 89 (1856); p. 156 (1857).

Testaceous: tegmina fuscous with a large transverse patch and spots on the margin, whitish-hyaline. Allied to *R. fenestrata*, Fabr. Long., 5; exp. teg., 16 millims.

Reported from Java, Borneo, Singapore, Burma.

Walker's *F. discalis*, is black: frons much broader than long, with a slightly elevated margin and slightly tricarinate: posterior margins of segments of abdomen and the legs dull testaceous: tegmina blackish, with a testaceous dot on the tip of each vein; disc limpid; two limpid dots on the costa and two towards the tip of the exterior border: wings limpid with brown borders. Body long, 6¼; teg., 16¾ millims.

69. RICANIA OBSCURA, Fabricius.

Flata obscura, Fabricius, Syst. Rhyng. p. 49 (1803); Germar in Thon's Archiv. ii (2) p. 49 (1830): Walker, J. Linn. Soc. Zool. i, p. 92 (1856); p. 161 (1857).
Pochazia obscura (?) Walker, List Hom. B. M. ii, p. 426 (1851).
Ricania obscura, Stål, Hem. Fabr. ii, p. 104 (1869).

♀. Pale testaceous-flavescent, vertex and thorax fuscous-testaceous, scutellum black: tegmina ferruginous-fuscous, sprinkled pale before the middle and in the middle, and with small pale transverse lines, an unequal narrow band placed behind the middle and the costal membrane obscurely fuscous, the extreme part of its margin pallid, a small oblique transverse line, behind the middle of the costal margin, whitish: wings fuscescent, apical margin of the two last ventral segments black towards the sides. Frons about one-third shorter than broad, gradually roundly narrowed towards the apex, distinctly tricarinate: scutellum 5-carinate, lateral ridges oblique: tegmina triangular; claval suture and apical margin equally long, the latter very slightly subrotundate; costal margin, gradually slightly rounded; apical commissural angle somewhat obtusish, distinct; apical costal angle somewhat rounded; longitudinal veins rather numerous, transverse discoidal veins rare; the posterior transverse veins arranged in two rows, the anterior irregular, the posterior regular and continued; the interior ulnar vein emitting many branches outwards (*Stål*). Body long, 5½; exp. teg., 15 millims.

Reported from Amboina, Borneo, Singapore, India.

70. RICANIA FUSCATA, Fabricius.

Cicada fuscata, Fabricius, Ent. Syst. iv, p. 28 (1794).

Flata fuscata, Fabr., Ent. Syst. Suppt., p. 518 (1798); Syst. Rhyng., p. 47 (1803).

Ricania obscura, Guérin, Voy. Bélanger Ind. Orient. Zool., p. 466 (1834).

Euryptera obscura, Guérin, l. c. Atlas, t. 3, f. 6 (1834).

Pochazia obscura, Stål, Ofvers. K. V.-A. Förh., p. 160 (1865); Walker, List Hom. B. M. ii, p. 426 (1851).

Pœciloptera antica, Westwood, Griffith's An. King. Ins. ii, p. 260, t. 90, f. 4; t. 138, f. 4 (1832).

Pochazia fumata (?) pt., Walker, l. c. p. 426 (1851).

Ricania fuscata, Stål, Hem. Fabr. ii, p. 104 (1879).

Head fuscous, frons flat, margin and median line elevated: thorax dull black, a dorsal and smaller incurved lateral line, elevated: abdomen fuscous: tegmina and wings deflexed, truncated, hyaline-black, immaculate: feet fuscous (*Fabr.*).

Dark brown with a small spot near the middle of the anterior margin; the lower wings are covered with a bluish powder at the base: apparently belongs to *Euryptera*, Guérin (Gray in Griffith, *l. c.*).

Obscure, somewhat cœrulean, covered with a powdery substance; thorax tricarinate: tegmina triangular, anterior margin somewhat straight, wings concolorous; feet abbreviated, brunneous-ferruginous (*Guérin*). Long 9: exp. teg. 30 millims. Stål identified this from the type with his own *P. obscura* which in Hem. Fabr. (*l. c.*) he makes one with *R. fuscata*, Fabr.

♂. Blackish; abdomen and feet pale fuscous-testaceous: tegmina and wings obscurely fuscous, the former marked behind the middle of the costal margin with a small, more or less distinct, flavescent greyish spot; costal and apical margins not sinuated towards the apical costal angle: wings behind the middle with the veinlets irregularly arranged and furnished towards the apex with a row of veinlets; frons very transverse, very roundly narrowed towards the apex, furnished with a median longitudinal ridge (*Stål*). Body long, 7—8; exp. teg., 29—32 millims.

Reported from Tranquebar, Java, Cambodia, Burma: the Indian Museum possesses a specimen from N. India.

71. RICANIA FUMATA, Am. & Serv.

Pochazia fumata, Am. & Serv., Hist. Nat. Ins. Hém. p. 529 (1843); Walker, List Hom. B. M. ii, p. 426 (1851), excl. syn.; J. Linn. Soc. Zool. i, p. 91 (1856) p. 160 (1857) and x, p. 163 (1867): Stål, Berlin Ent. Zeitschr. vi, p. 314 (1862).

In all respects similar to *R. fasciata*, Fabr., but without a hyaline band or spot. Black-fuscous, beneath with feet and vertex sordid yellow-livid; tegmina and wings fuscous-pellucid, in certain positions shining subviolaceous; small marginal space on the tegmina at the costal sinus obsoletely pallescent. Frons almost half broader than the length, lateral margins slightly converging at the base, gradually rounded beneath the middle towards the apex, tricarinate, the median ridge somewhat continued through, the two lateral more obsolete, continued from the base scarcely to the middle: the apical margin of the tegmina somewhat longer than the commissural margin, very slightly sinuate between the middle and the apical angle, costal margin broadly distinctly sinuate a little behind the middle: wings furnished posteriorly with transverse veinlets arranged in two rows, the posterior row more regular: last tibiæ armed with two distinct spines behind the middle and before the middle (always?) with a small spinule (*Stål*). Exp. teg., 41 millims.

Reported from Java, Sumatra, Borneo, Malacca, Singapore, Tenasserim.

72. RICANIA SINUATA, Stål.

Pochazia sinuata, Stål, Ofvers. K. V.-A. Förh. p. 160 (1865).

Pochazia fasciata, Am. & Serv. [nec Fabr.], Hist. Nat. Ins. Hém. p. 528, t. 9, f. 7 (1843): Walker, List Hom. B. M. ii, p. 426 (1851); J. Linn. Soc. Zool. i, p. 91 (1856).

♂. Blackish; beneath with feet fuscous-testaceous; tibiæ and tarsi, paler; tegmina and wings black-fuscous, the former slightly shining violaceous; a band on the tegmina placed behind the middle abbreviated near the costal margin and sometimes interrupted, and a median band on the wings abbreviated towards the anal area, whitish. Stature entirely of *R. fumata*, A. & S.: the frons with obsolete longitudinal striæ and three obsolete ridges: wings behind the middle with two abbreviated transverse rows of transverse veinlets; costal apical angle of tegmina a little more produced than in *R. fumata* (*Stål*). This species is often confounded with *R. fasciata*, Fabr., which is somewhat like in the marking, but differs in having the costal and apical margins of the tegmina straight and not sinuated, the exterior apical angle less produced and the head somewhat narrower, and is moreover an African species. Long, 8½; exp. teg., 35 millims.

Reported from Singapore, Malacca.

73. RICANIA SPECULUM, Walker.

Flatoides speculum, Walker, List Hom. B. M. ii, p. 406 (1851).

Flatoides tenebrosus, Walker, l. c. p. 406 (1851): J. Linn. Soc. Zool. i, p. 89 (1856).

Flatoides perforatus, Walker, l. c. p. 407 (1851) : J. Linn. Soc. Zool. x, p. 147 (1867).
Ricania malaya, Stål, Ofvers. K. V.-A. Förh. p. 247 (1854).
Ricania speculum, Stål, l. c. pp. 489, 491 (1862).

♀. Body black : legs ferruginous : tegmina brown with five colourless or whitish-hyaline spots, two on the disc, one near them on the costal margin, and two on the apical margin, of which the one nearer the posterior angle is sometimes interrupted so as to appear two, veins brown, whitish on the colourless parts : wings paler brown, pellucid, with many almost colourless dots. Body long, 6—8½ ; teg., 21—24 millims.

Reported from Philippines, China, Malacca, Singapore : the Indian Museum possesses a series from Pankabári, Sikkim, Sibságar (Assam).

74. RICANIA FUMOSA, Walker.

Flatoides fumosa, Walker, List Hom. B. M. ii, p. 414 (1851).
Ricania fumosa, Stål, Ofvers. K. V.-A. Förh. p. 491 (1862).

♀. Body dark ferruginous ; frons and legs ferruginous : mesonotum piceous : tegmina blackish brown, veins black : wings brown. Body long, 3¼ ; teg., 12½ millims.

Locality not reported : the Indian Museum possesses a specimen from Assam ?

75. RICANIA APICALIS, Walker.

Pochazia apicalis, Walker, List Hom. B. M. ii, p. 431 (1851).
Ricania apicalis, Stål, Ofvers. K. V.-A. Förh. p. 491 (1852).

♀. Body testaceous : mesonotum black : legs testaceous : tegmina dull fawn-colour, ample, finely pubescent, with two indistinct pale brown oblique bands, the first forming a ringlet ; a black dot by the tip of the fore-border, veins tawny : wings pale grey, pale brown along the hind border. Body long, 5¼ ; teg., 16¼ millims.

Locality not reported : the Indian Museum possesses specimens fairly agreeing with the description from Sikkim.

76. RICANIA OCELLUS, Walker.

Pochazia ocellus, Walker, List Hom. B. M. ii, p. 429 (1851).
Flatoides facialis, Walker, l. c. Suppt. p. 100 (1858).
Ricania ocellus, Stål, Ofvers. K. V.-A. Förh. p. 491 (1862).

♂, ♀. Body piceous : vertex and frons with a ferruginous rim : clypeus and rostrum tawny : abdomen ferruginous at the base and beneath: legs tawny: tegmina and wings colourless with brown borders, the former ample, a brown dot near the base, beyond it two slender brown bands; the first forming a brown ringlet on the disc between which and the border it is widened and includes a colourless dot; the second very slight extending along the outer band of transverse veins; veins tawny, here and there brown: stigma tawny: wings with a brown exterior border. Body long, 5—6½; teg., 17—19 millims.

Reported from China: the Indian Museum has a specimen from Assam.

77. RICANIA INTERRUPTA, Walker.

Pochazia interrupta, Walker, List Hom. B. M. ii, p. 428 (1851): nec *P. interrupta*, J. L. S. Zool. i, p. 91 (1856).

Ricania interrupta, Stål, Ofvers. K.-V.-A. Förh. p. 491 (1862).

♀. Body black: head very short, as broad as the thorax; vertex very short, dark ferruginous, bordered by a rim, sinuate on the posterior border, nearly straight in front, its length in the middle about half of that on each side; frons very finely striated, rounded on each side, rather narrower towards the clypeus, bordered by a ferruginous rim, slightly concave where it joins the clypeus, tricarinate, the lateral ridges indistinct, its breadth a little less than twice its length; clypeus ferruginous, triangular, with a slight median ridge; pronotum very slightly sinuated behind, rounded anteriorly with a median ridge, on each side of which there is an impression, its length in the middle less than twice that on each side: mesonotum very finely striated, 5-carinate, the two ridges on each side united on the disc: abdomen dark ferruginous, obconical, a little longer than the thorax: legs ferruginous: tegmina dark brown, ample, triangular, with a broad, oblique white band which is interrupted in front; a row of white dots extending on the edge of the tegmen from the hind border along one-third of the distance to the tip; veins blackish, pale yellow on the white parts; longitudinal veins very numerous; transverse veins few; fore-border straight, along it a row of mostly parallel transverse veins which are more oblique where the longitudinal vein appears contorted, beyond this they are shorter: wings brown, little more than half the length of the tegmina with a white band which forms one with that on the tegmina (*Walker*). Body long, 6¼; teg., 25 millims.

Reported from Malabar.

78. RICANIA SIMULANS, Walker.

Pochazia simulans, Walker, List Hom. B. M. ii, p. 431 (1851).

Ricania simulans, Stål, Ofvers. K. V.-A. Förh. p. 491 (1862).

♀. Body ferruginous: head as broad as the thorax; vertex very short, posteriorly sinuate, very slightly rounded in front, shorter in the middle than on each side; frons flat, rounded on each side, narrower towards the clypeus, bordered by a rim, concave where it joins the clypeus, not ridged, its breadth nearly twice its length: clypeus triangular: pronotum very short, arched, bordered by a rim: mesonotum black, not ridged: metanotum tawny: abdomen obconical, tawny at the base, hardly longer than the thorax: legs tawny: tegmina brown, ample, a tawny triangular spot on the anterior margin beyond the middle; two broad, oblique, very irregular, colourless bands on the disc, first short, second interrupted; veins tawny, longitudinal veins numerous, transverse veins few; anterior margin slightly convex, along it a row of parallel transverse veins which are contorted and more oblique towards the tip: wings pale greyish-brown (*Walker*). Body long, 5¼; teg., 16½ millims.

Reported from N. India.

79. Ricania prominens, Walker.

Ricania prominens, Walker, Ins. Saund. Hom. p. 48 (1858).

Dull testaceous: head with eye and antennæ forming a large vertical compartment; vertex transverse, very short, mostly covered by the pronotum; frons with transverse blackish marks, very much longer than broad, with elevated borders and three slight ridges, the middle one abbreviated, the pair converging towards the face, where they are connected; face lanceolate, ridged: pronotum bicarinate, very convex along the fore border; mesonotum with a brown interlined disc and two blackish dots on each side; metanotum and abdomen dark brown, the latter with a pale testaceous stripe on each side: legs testaceous, femora slightly streaked with black: tegmina with brown marks along the costa and with a few brown marks elsewhere and with an irregular whitish subapical band; stigma whitish; veinlets regular along the costa and along the exterior border where they are mostly forked, the discal veins and veinlets irregular, the latter numerous; wings with very few veinlets; both vitreous grayish, veins black and the exterior borders brown (*Walker*). Body long, 8½; teg., 25 millims.

Reported from Silhat.

80. Ricania guttifera, Walker.

Pochazia guttifera, Walker, List Hom. B. M. ii, p. 427 (1851).

Ricania guttifera, Stål, Ofvers. K. *V.*-A. Förh. p. 491 (1862); Distant, J. A. S. B. xlviii (2), p. 38 (1879).

♂, ♀. Body black: head very short, as broad as the thorax: vertex bordered with a rim, sinuate behind, straight in front, its length in the middle about half of that on each side: frons dark ferruginous with a black border, very finely striated, rounded on each side, narrower towards the clypeus, bordered by a rim, hardly sinuated where it joins the clypeus, having a middle ridge which does not reach the fore-border, its breadth nearly twice its length: clypeus triangular, with a middle ridge: pronotum slightly sinuate behind more rounded on the anterior margin, with a middle ridge much longer in the middle than on each side; mesonotum 5-carinate, the two ridges on each side united on the disc: abdomen obconical, a little longer than the thorax, ferruginous towards the base: legs ferruginous: tegmina triangular, ample, dark brown, blackish along the fore-border, with three colourless spots, one on the fore-border beyond the middle, one near the tip and one which is smaller near the hind border: a white dot on the disc and between it and the tip a small indistinct, tawny spot; veins blackish, tawny on the colourless spots, longitudinal veins very numerous towards the tips, transverse veins free; fore-border straight, along it a row of oblique, mostly parallel, transverse veins which are shorter towards the tip: wings dark brown, little more than half the length of the tegmina (*Walker*). Body long, 7—8½; teg., 29—36 millims.

Reported from Silhat (Assam).

Species doubtfully Indian.

81. RICANIA GUTTATA, Walker.

Flatoides guttatus, Walker, List Hom. B. M. ii, p. 408 (1856): J. L. S. Zool. i, p. 156 (1857).

Ricania guttata, Stål, Ofvers. K. V.-A. Förh. p. 491 (1862).

♂. Black: vertex piceous, frons dark ferruginous: pronotum ferruginous: legs tawny, femora piceous: tegmina blackish-brown, with three whitish-hyaline spots, one on the disc round, second larger and almost triangular placed on the costal margin near the tip, third as large as the first placed on the tip near the costal margin; a row of colourless dots along the tips of the tegmina; veins blackish, pale on the spots. Body long, 6¼; teg., 21 millims.

Reported from Hong Kong, Borneo.

82. RICANIA EPISCOPUS, Walker.

Flatoides episcopus, Walker, List Hom. B. M. Suppl. p. 100 (1858).

Ricania episcopus, Stål, Ofvers. K. V.-A. Förh., p. 491 (1862).

Tawny, testaceous beneath: abdomen luteous: tegmina and wings whitish; the tegmina with three broad blackish bands which are connected in front, the first and second connected in the middle; the three more or less connected with, or interrupted by three chalybeous black bands, of which the first is costal, the second is curved and contained in the fore-part of the second blackish band, and the third is marginal: a deep black spot half enclosed in the second chalybeous band: the wings with a broad median lurid band and a blackish marginal band. Body long, 8½-9½; teg., 21-23 millims.

Reported from N. China.

83. RICANIA OBLIQUA, Walker.

Pochazia obliqua, Walker, List Hom. B. M. ii, p. 429 (1851).
Ricania obliqua, Stål, Ofvers. K. V.-A. Förh., 591 (1862).

♂. Body black: frons dark ferruginous: legs ferruginous: tegmina brown, ferruginous towards the base (the costal margin excepted), with two slightly tawny bands, the outer one of irregular breadth, the inner one shorter and broader, and between them on the costal margin is a slightly tawny nearly triangular spot; veins concolorous: the wings are very slightly tinged with tawny, brown along the fore-borders. Body long, 6—7¼; teg., 19—21 millims.

84. RICANIA MARGINALIS, Walker.

Flatoides marginalis, Walker, List Hom. B. M. ii, p. 409 (1851): J. Linn. Soc. Zool. i. p. 89 (1856).
Ricania marginalis, Stål, Ofvers. K. V.-A. Förh. p. 491 (1862).

♀. Body black: abdomen and legs ferruginous: femora piceous: tegmina and wings blackish-brown, the former with five colourless spots of which one is a dot on the disc, second very large, triangular, on the costal margin near the tip, third much smaller on the tip, with 2—3 colourless dots, fourth and fifth small irregular, on the tip near the hind border; a row of colourless dots along the tips of the tegmina; veins blackish, pale on the spots. Body long, 7¼; teg., 25 millims.

Reported from Singapore, Africa (?).

85. RICANIA WALKERI.

Pochazia interrupta (n. b. l.), Walker, J. Linn. Soc. Zool. i, p. 91 (1856).

Testaceous: tegmina and wings brown, the former partly lurid towards the hind border, an interrupted band beyond the middle, tips hyaline, slightly testaceous. Vertex much broader than long; frons elongate subquadrate, with a slight groove in the middle: pronotum arched, extending over part of the vertex: mesonotum slightly tricarinate (*Walker*). Body long, 6¼; teg., 14½ millims.

Reported from Singapore.

86. RICANIA COSTIMACULA, Walker.

Pochazia costimacula, Walker, J. Linn. Soc. Zool. i, p. 91 (1856).

Black: head and legs tawny; vertex brown with a tawny border: tegmina and wings blackish, the former mostly lurid along the borders and about the transverse veinlets and with a whitish hyaline spot on the costa beyond the middle. Frons broader than long with a median ridge and an elevated margin (*Walker*). Body long, 5; teg., 14½ millims.

Reported from Malacca.

87. RICANIA GRADIENS, Walker.

Pochazia gradiens, Walker, J. Linn. Soc. Zool. i, p. 91 (1856).

Tawny, testaceous beneath: tegmina and wings blackish, the former tawny along the costa. Head with a median ridge and with the margins elevated: frons hardly broader than long, the sides rounded (*Walker*). Body long, 5; teg., 12½ millims.

Reported from Singapore.

88. RICANIA PLEBEIA, Stål.

Ricania plebeia, Stål, Ofvers. K. V.-A. Förh. p. 162 (1865).

♀. Fuscous-greyish; beneath with frons and feet, paler; tegmina fuscous, sprinkled with minute pale dots before the middle; a small obliquely transverse median line on the costal limbus whitish, and a very minute punctiform spot on the apical costal angle, black: wings infuscate. Frons tricarinate: commissural apical angle of the tegmina straight, apical margin almost entirely straight (*Stål*). Long, 7; exp. teg., 22 millims.

Reported from Siam.

89. RICANIA LIMITARIS, Stål.

Ricania limitaris, Stål, Ofvers. K. V.-A. Förh. p. 161 (1865).

Fuscous-testaceous, frons and feet paler: tegmina fuscous, clavus and indeterminate interior part of the corium, paler; a largish costal spot placed almost behind the middle, sordid whitish; a small shining spot in the costal apical angle, blackish, and a small obsolete discoidal spot, fuscous: wings very slightly infuscate. Frons obsoletely tricarinate, costal limbus of tegmina remotely transversely veined (*Stål*). Long, 8; exp. teg., 22 millims.

Reported from Cambodia.

90. RICANIA PULVEROSA, Stål.

Ricania pulverosa, Stål, Ofvers. K. V.-A. Förh. p. 162 (1865).

♂, ♀. Fuscous-testaceous; vertex, thorax, and scutellum, black: the basal part of the tegmina powdery-flavescent and the disc clouded fuscous; the transverse discoidal veinlets and the costal margin before the middle, pale; the latter minutely spotted fuscous; three costal spots, the median somewhat large, a small one near the apex, and a very minute apical one, yellow-whitish; the median costal spot with black transverse lines; a minute spot in the apical costal angle, black: wings weak fuscescent. Frons distinctly tricarinate: tegmina densely veined, the transverse veinlets on the costal limbus remote (*Stål*). Long, 4—7; exp. teg., 14—20 millims.

Reported from Cambodia.

91. RICANIA EPISCOPALIS, Stål.

Ricania episcopalis, Stål, Ofvers. K. V.-A. Förh. p. 162 (1865).

♀. Weak fuscous-testaceous: tegmina more obscure, costal spot behind the middle also two bands, one placed before the middle and abbreviated outwards, the other placed behind the middle and abbreviated near the costal margin, somewhat interrupted in the middle and produced a little forwards anteriorly, whitish hyaline; a spot near the costal margin behind the middle and an arch placed between the spot and the margin, black; wings very slightly infuscate, the base and a transverse spot behind the middle, whitish. Frons with a median obsolete ridge, lateral ridges very obsolete: tegmina densely veined, very numerous transverse veinlets on the costal limbus, several of which are forked (*Stål*). Long, 7; exp. teg., 21 millims.

Reported from N. China, Formosa.

Genus MINDURA, Stål.

Rio Jan. Hem. ii, p. 69 (1862).

In Hem. Afric. iv, p. 220 (1866), Stål unites the genera *Mindura* and *Miriza* with *Nogodina*, but subsequently [Ofvers. K. V.-A. Förh., p. 769 (1870)] keeps them separate and creates from *Miriza* the subgenera *Varcia* and *Sassula*, to the latter of which *M. sorurcula*, Stål, belongs.

Frons with two distinct ridges, slightly converging towards the apex, much longer than broad; vertex distinctly prominulous before the eyes; lateral margins of the clypeus carinate at least at the base: tegmina equally broad, broadly rounded at the apex, furnished between the apex of the clavus and the transversely veined costal area with a continued row of distinct transverse veinlets, the costal area of the usual breadth; interior vein of corium forked before the middle.

A. Tegmina vitreous; the first and second longitudinal veins emitted from the basal area not forked before the transverse row of veinlets mentioned above, transverse veins rare, very rare and obsolete before the row above mentioned; transverse veins on the apical part forming two rows, before which irregularly scattered transverse veins are present; last pair of tibiæ 3-spinose.—MIRIZA, Stål, of which the type is *Ricania bohemani*, Stål.

B. Tegmina opaque, with somewhat closely arranged transverse veinlets; the second longitudinal vein emitted from the basal area forked before the continued transverse row of veinlets; numerous transverse veinlets irregularly arranged on the apical part: last pair of tibiæ, 4-spinose.—MINDURA, Stål, of which the type is *Flata obscura*, Fabricius.

92. MIRIZA SORURCULA, Stål.

Miriza sorurcula, Stål, Ofvers. K. V.-A. Förh. p. 164 (1865); p. 769 (1870).

♂. Weak testaceous-flavescent: tegmina and wings sordid hyaline: extreme part of the lateral margins of the frons and clypeus, median ridge on the frons, two spots on the vertex and thorax, three lateral spots on the scutellum, the clavus except the basal part, irregular marginal spots on the corium which are more or less confluent, apical limbus of the wings, lateral margins and abbreviated bands on the dorsum of the abdomen, fuscous: disc of the scutellum more obscure (*Stål*). Long, 11; exp. teg., 30 millims.

Reported from Cambodia.

93. MINDURA HEMEROBII, Walker.

Ricania hemerobii, Walker, List Hom. B. M. ii, p. 425 (1851); J. Linn. Soc. Zool. i, p. 89 (1856).

Mindura hemerobii, Stål, Ofvers. K. V.-A. Förh. p. 491 (1862).

♂, ♀. Body tawny: frons dotted with brown, bordered by a black-edged rim; clypeus with a median ridge and border, black: mesonotum ferruginous with a tawny median stripe and two oblique black and slightly undulating ridges: abdomen with a black stripe above: legs tawny, striped black: tegmina and wings nearly colourless, the former with the tips and five spots, brown; of the latter two are placed near the tips towards the hind border, one near the tip on the fore-border and two are by the stigma which is tawny; veins black: wings edged with brown. Body long, 8½; teg., 27 millims.

Reported from Ceylon, Malacca.

Genus Pucina, Stål.

Hem. Afric. iv, p. 221 (1866), Berlin Ent. Zeitschr. x, p. 393 (1866).

Clavus without transverse veinlets: head not prominent before the eyes; vertex transverse; clypeus convex, without lateral ridges: tegmina gradually slightly amplified towards the apex, furnished towards the apex with oblong areolas arranged in two rows and with many areolas less regularly arranged on the disc; ulnar veins and radial forked somewhat before the middle of the corium; first tibiæ hardly longer than the femora and trochanters, last tibiæ bi-spinose (*Stål*).

94. Pucina pellucida, Guérin.

Cixius pellucidus, Guérin, Voy. La Coquille, Zool. ii, (2), p. 189 (1830): Icon. Règne Animal, t. 58, f. 4 (1830-34).

Ricania pellucida, Spin., A. S. E. F. (1 sér.) viii, p. 401 (1839); Walker, List Hom. B. M. ii, p. 423 (1851).

Pucina pellucida, Stål, Berlin Ent. Zeitschr. x, p. 393 (1866).

Head yellowish with three ridges: frons thrice longer than broad, strongly margined and with a median ridge; vertex broader than long, disc flat and horizontal, margins elevated, fine; anterior margin obtusely angular, its tip extended a little beyond the eyes; posterior margin angularly emarginate: thorax varied with green and brown, also the abdomen, which is less high than broad: tegmina and wings transparent, veins brown, with a brown triangular dot on the anterior margin of each tegmen and near its tip; radial vein weakly arcuate, sub-radial straight, rejoining the radial towards the second third on the anterior margin, the intermediate space with eight transverse, sub-parallel veins and divided into nine fairly large cellules, of which the seven intermediate are as broad as long, the two extreme longer than broad; the adjoining space between the radial and cubital veins divided into two large, narrow, elongate cellules by a complete, transverse vein: feet yellowish, tarsi brown; posterior tibiæ with two lateral spines. Long, 6; exp. teg., 16 millims.

Reported from Java, Bengal.

Subfam. Flatina, Stål.

Flatida, Hem. Afric. iv, pp. 131, 235 (1866); *Flatina*, Ofvers. K. V.-A. Förh. p. 771 (1870).

Clavus granulate, apex sometimes subacute and closed, sometimes very obtuse and broadly open; with two veins separated through the entire length or near the apex united in one; costa dilated, costal membrane transversely veined; claval suture distinct; anal area of wings not reticulated: last tibiæ without a mobile spur (*Stål*).

Genus CERYNIA, Stål.

Rio Jan. Hem. ii, p. 68 (1862); Hem. Afric., p. 235 (1866).

First joint of antennæ oblong or elongate, hardly shorter than the second; genæ anteriorly rounded; frons longitudinally convex: thorax produced in the middle and covering the short vertex; tegmina very greatly decumbent, very ample; posterior tibiæ very often bi-spinose: costal membrane narrowed at the base (*Stål*).

95. CERYNIA MARIA, White.

Pœciloptera maria, White, A. M. N. H. xviii, p. 25, t. 1, f. 3 (1846).

Flata maria, Walker, List Hom. B. M. ii, p. 436 (1851).

Cerynia maria, Stål, Ofvers. K. V.-A. Förh. p. 490 (1862); Distant, J. A. S. Ben. xlviii (2), p. 38 (1879); A. M. N. H. (5 sér.) xi, p. 172 (1883).

Of a very delicate white colour with a reddish wax-like spot not far from the base of the tegmina, an interrupted somewhat curved narrow black line running across the wing not reaching the fore-margin: behind it, and not far from the end of the inner margin there is a short narrow black line: the tegmina more or less powdered with a waxy secretion; the wings white, somewhat hyaline: head, thorax, body and femora very pale yellow; antennæ and tibiæ blackish: a large tuft of white, waxy, spongeous matter at the end of the body. In some specimens the red mark on the tegmina is nearly obsolete and the transverse black line is quite obsolete anteriorly (*White*). Exp. teg., 33—34 millims.

Var. *a*. *Flata tenella*, Walker, *l. c. supra*, p. 437 (1851), has the tegmina of a very delicate pale-green, abdomen in ♂ concolorous and in ♀ pale yellow.

Var. *b*. *Cerynia rosea*, mihi, has the tegmina of a delicate pale rose colour and comes from Sikkim.

Reported from India, Assam, Tenasserim. The Indian Museum possesses specimens from Sikkim, Assam, Tenasserim.

Genus PHROMNIA, Stål.

Rio Jan. Hem. ii, p. 68 (1862); Hem. Afric. iv, pp. 235, 239 (1866): *Flata*, pt., Am. & Serv., Hist. Nat. Ins. Hém. p. 521 (1843).

Body oblong, compressed: head much narrower than the thorax; vertex short, thorax concealed; frons longitudinally convex, seen from the side roundly-prominulous; genæ anteriorly rounded; clypeus long: no ocelli: antennæ elongate, rounded, second joint twice or half longer than first: disc of thorax elevated behind the vertex, the elevated part somewhat sloped forwards, produced, covering the vertex: scutellum convex: tegmina very ample, very greatly decumbent, longer by half than broad, rounded at the apex, very densely longitudinally veined, few transverse veinlets on the disc, furnished near the apex with a regular row of transverse veinlets, costal membrane everywhere equally broad; costal area furnished with obliquely transverse, forked, veins: feet moderate, simple; last tibiæ very often bispinose (*Stål*).

96. PHROMNIA MARGINELLA, Olivier.

Fulgora marginella, Olivier, Enc. Méth. vi, pp. 566, 575 (1791): Stoll, p. 50, t. 11, f. 54 (1788).

Flata marginella, Walker, List Hom. B. M. ii, p. 434 (1851); excl. syn.

Phromnia marginella, Stål, Ofvers. K. V.-A. Förh. p. 490 (1862); Distant, A. M. N. H. (5 sér.) xi, p. 171 (1883).

Body and feet greenish: apical joints of antennæ brown: tegmina bright green; at the base itself with an orange-patch (at least in old specimens) costal margin up to apical fifth narrowly sanguineous, bordered interiorly with verdigris green, longitudinal veins slightly orange towards the base: wings white, transparent. Body long, 13; teg. long, 24 millims.

Reported from Ceylon, Mergui; the Indian Museum has a series from Sikkim, Assam.

97. PHROMNIA TRICOLOR, White.

Pœciloptera (Flatida) tricolor, White, A. M. N. H. xviii, p. 26 (1846).

Flata tricolor, Walker, List Hom. B. M. ii, p. 435 (1851).

Phromnia tricolor, Stål, Ofvers. K. V.-A. Förh. p. 490 (1862): Distant, A. M. N. H. (5 sér.) xi, p. 172 (1883).

Tegmina pale-green, anterior margin (especially at the base) reddish, the colour gradually verging into green; a few white powdery dots on the basal part, the underside washed white: wings white, somewhat powdered; veins, especially at the base, greenish: body and legs pale-green. The front edge of the wings near the base has a prominent angle, followed by a sinuation (*White*). Exp. teg. about 48 millims.

Reported from Silhat: the Indian Museum possesses specimens from Siam, Samaguting and Naga hills in one of which the green of the tegmina has faded to orange-yellow and in others the red is far advanced towards the middle and in others wanting.

98. PHROMNIA RUBICUNDA, Distant.

Phromnia rubicunda, Distant, A. M. N. H. (5 sér.) xi, p. 171 (1883).

Tegmina dull reddish, becoming slightly paler towards the apex; the basal, marginal and apical areas above somewhat irregularly tinged and spotted with chalky white; beneath more evenly and palely tinged with the same colour: wings white: body pale ochraceous, the pronotum somewhat darker in hue: legs pale ochraceous, first and intermediate tibiæ and tarsi, black; last tarsi with the apical joint, black: tibiæ strongly sulcated, last tarsi armed with three prominent spines. Allied to *P. tricolor*, White, but differs in the longer tegmina and different colour of the same, different colour of tibiæ, &c. (*Distant*). Exp. teg., 62 millims.

Reported from Mergui.

99. PHROMNIA INTACTA, Walker.

Flata intacta, Walker, List Hom. B. M. ii, p. 435 (1851).
Phromnia intacta, Stål, Ofvers. K. V.-A. Förh. p. 490 (1862).

♀. Body pale stramineous: antennæ long, stramineous, third joint black, much longer than the second: pronotum almost truncate-conical on the disc, somewhat impressed in front, tricarinate, ridges produced through the mesonotum: abdomen obconical, not longer than the thorax: legs tawny; anterior tarsi and tips of the anterior tibiæ and of the hind tarsi, black: tegmina dingy white, veins white: wings milk-white. Body long, 9½; teg., 46 millims.

Reported from Silhat.

100. PHROMNIA INORNATA, Walker.

Flata inornata, Walker, List Hom. B. M. ii, p. 438 (1851).
Phromnia inornata, Stål, Ofvers. K. V.-A. Förh. p. 490 (1862).

Body tawny: antennæ black, very long, tawny towards the base: pronotum straight behind, conical in front, its length about one-fourth its breadth; mesonotum indistinctly tricarinate, disc flat: abdomen obconical, a little longer than the thorax: legs tawny, feet and tips of the anterior tibiæ, black: tegmina dull pale tawny, veins yellow: wings colourless. Body long, 12½; teg., 42 millims.

Reported from Tenasserim.

Genus LECHÆA, Stål.

Hem. Afric. iv, p. 236 (1866).

Tegmina furnished towards the apex with one or two rows of transverse veinlets or with veinlets irregularly scattered throughout, and with very many or several longitudinal veins forked at the apex, the longitudinal veins at the apex rarely simple, if so, the tegmina are furnished with a single row of veinlets near the apex. Body cylindrical or compressed; tegmina very greatly decumbent. Frons seen from the side and genæ produced in the middle; tegmina very ample, gradually somewhat amplified towards the apex, furnished near the apex with a regular arched row of transverse veinlets which begins behind the apex of the clavus, costal area transversely veined, some veins anastomosed. (*Stål*). Type, *L. dentifrons*, Guérin.

101. LECHÆA DENTIFRONS, Guérin.

Pœciloptera dentifrons, Guérin, Icon. Règne Animal, Texte, p. 360 (1830-34). Walker, List Hom. B. M. ii, p. 445 (1851).

Lechæa dentifrons, Stål, Berlin Ent. Zeitschr. x, p. 393 (1866).

Genus SCARPANTA, Stål.

Hem. Afric iv, pp. 236, 240 (1866).

Body oblong, compressed: head much narrower than the thorax, vertex very short, concealed by the thorax: antennæ very short, first joint hardly visible: ocelli distinct: thorax compressly-elevated on the disc, elevated part flat, a little sloped forwards, anteriorly truncated, produced, covering the vertex, on both sides acutely margined or terminated by a ridge reaching the base: scutellum tricarinate: tegmina very ample; very greatly decumbent; gradually amplified beyond the middle; truncated at the apex, remotely veined; furnished throughout with transverse veinlets irregularly scattered, remote; costal area broad, remotely reticulate: the elevated dorsal part of the abdomen emitting a slender, erect, process: feet moderate, simple: last tibiæ bispinose (*Stål*).

102. SCARPANTA COMMA, Walker.

Pœciloptera comma, Walker, List Hom. B. M. ii, p. 447 (1851).

Scarpanta comma, Stål, Ofvers. K. V.-A. Förh. p. 490 (1862).

♂. Body buff: abdomen powdered with white, valves and other appendages at the tip large: legs tawny: anterior feet and tips of the anterior tibiæ and of the hind feet, black: tegmina buff, a very short and slender, slightly oblique, black streak on the disc, an oblong black dot near the hind border at one-third of the length from the base; veins buff: wings milk white. Body long, 9⅓; teg., 37½ millims.

Reported from Silhat.

Genus FLATA, Fabricius, Stål.

Ent. Syst. Suppt. pp. 511, 517 (1798); Stål, Berlin Ent. Zeitschr. vi, p. 313 (1862); Hem. Afric. iv, pp. 236, 241 (1866).

It includes *Colobesthes*, Am. & Serv., Hist. Nat. Ins. Hém., p. 522 (1843); *Cromna*, Walker, J. Linn. Soc. Zool. i, p. 85 (1856); and *Phyllyphanta*, Am. & Serv., l. c., p. 523 (1843).

Body oblong, compressed: head narrower than the thorax, varying in shape; vertex short, concealed; frons sometimes tumid or conically produced at the base: ocelli distinct: antennæ very short: thorax anteriorly somewhat produced, covering the vertex: scutellum more or less distinctly tricarinate: tegmina very ample, very greatly decumbent gradually amplified towards the apex, truncated at the apex, moderately densely veined, most, often all, the transverse veinlets irregularly scattered, veinlets rarely arranged in one or two irregular rows towards the apex, costal area irregularly reticulated: feet simple, last tibiæ bispinose (*Stål*). Type, *Flata ocellata*, Fabr.

103. FLATA OCELLATA, Fabricius.

Cicada ocellata, Fabr., Syst. Ent. p. 682 (1775); Spec. Ins. ii, p. 322 (1781); Mant. Ins. ii, p. 268 (1787); Ent. Syst. iv, p. 27 (1794), excl. syn. de Géer.

Flata ocellata, Fabr., Ent. Syst. Suppt., p. 517 (1798); Syst. Rhyng., p. 49 (1803), Stål, Ofvers. K. V.-A. Förh. p. 489 (1862); Hem. Fabr. ii, p. 107 (1869).

Ricania ocellata, Germar, Mag. Ent. iii, p. 224 (1818).

Pœciloptera ocellata, Burm., Handb. Ent. ii (i), p. 162 (1835); Spin., A. S. E. F. viii, p. 441 (1839); Walker, List Hom. B. M. ii, pp. 444, 454 (1851).

Pœciloptera stellaris, Walker, List l. c. ii, p. 453 (1851).

Pœciloptera argiolus, Stål, Ofvers. K. V.-A. Förh. p. 191 (1855).

Green: tegmina much compressed, posteriorly acutely angulated, green, sprinkled with numerous ocellar ferruginous dots: feet pallid (*Fabr.*). In faded specimens the colour is a dirty white or yellow and the ferruginous spots become an obscure brown.

Stål's *P. argiolus* is thus described:—'Weakly whitish-virescent; frons, thorax, and scutellum tricarinate, the last, however, less so: tegmina sparingly sprinkled with small dull black-sanguineous spots, obsoletely circled whitish; clavus granulate.' Body long, 6; exp. teg., 20 millims.

Reported from Tranquebar.

104. FLATA FERRUGATA, Fabricius.

Flata ferrugata, Fabr., Syst. Rhyng. p. 50 (1803); Germar in Thon's Archiv. ii, fasc. 2, p. 49 (1830); Stål, Hem. Fabr. ii, p. 108 (1869).

♀. Very palely subtestaceous-flavescent, here and there covered with a whitish powdery substance; wings whitish: apical margins of the two last segments of the abdomen in ♀ at least, black towards the sides. Very close to *F. ocellata*, Fabr., hardly differs except in coloration unless in having the apical, commissural angle of the tegmina a little less produced, somewhat straight, not distinctly acute and thorax with a single less distinct median ridge. Head truncate, vertex very obtusely angulated anteriorly, concealed by the thorax; frons a little longer than it is broad beneath the middle, gradually slightly amplified from the base beyond the middle, thence on both sides obtusely rounded furnished with an obtuse median ridge running through it, slightly impressed on both sides within the lateral margins, not tumescent at the base: thorax with a median ridge (*Stål*). Body long, 8; with teg., 10½; exp. teg., 24 millims.

Reported from Tranquebar.

105. FLATA MARGINELLA, Guérin.

Ricania marginella, Guérin, Voy. La Coquille Zool. ii (2), p. 192 (1830); Icon. Règne Animal Ins., t. 58, f. 6 (1830-34); Voy. Bélanger Ind. Orient. p. 467 (1834.)

Pœciloptera marginella, Spin., A. S. E. F. (1 sér.) viii, p. 433 (1839); Walker, List Hom. B. M. ii, p. 443 (1851).

Nephesa marginella, Walker, J. Linn. S. Zool. i, p. 161 (1857).

Pœciloptera fimbriolata, Stål, Ofvers. K. V.-A. Förh. p 247 (1854).

Phyllyphanta fimbriolata, Stål, Freg. Eug. Resa, p. 282 (1859); Ofvers. l. c., p. 159 (1865).

Head greenish-yellow: frons elevated in a small, conical, somewhat projecting process: pro- and meso-notum, fresh green with four longitudinal lines converging towards the head, the two internal a little broader and more visible, also some patches on the sides, bright orange or miniaceous red: metanotum and abdomen yellowish-white mingled with some green tints: head beneath, four anterior tibiæ, and anus pale brown: entire body beneath, four anterior femora, and posterior feet very pale green: tegmina falciform, very fresh green, reticulated orange, outline bordered russet and dentate within, very slender at the side and external margin, broader on the posterior margin; towards the end of this margin, at the second third from the base, there is a small rounded russet patch touching the border and placed near the exterior dilated angle: wings milky-white with slightly greenish and bluish reflections: abdomen and feet greenish-white (*Guérin*). Long, 6; exp. teg., 19 millims.

Stål's description of his *P. fimbriolata*, which was clearly made from a faded specimen, is:—"Yellow, streak on vertex and thorax and entire limbus of tegmina, fuscous-sanguineous, disc of thorax with two luteous streaks; frons reflexly-margined, furnished on both sides with a very obsolete ridge towards the base, but towards the apex entirely evanescent; disc of thorax bicarinate; scutellum 4-carinate, with the lateral ridges abrupt behind the middle, somewhat flat between the median ridges; colour of tegmina changing into subvirescent, cellules margined lutescent, clavus granulate inwards; wings milk-white. ♀ long, 7; exp. teg., 20 millims."

Reported from Cochin-China, Malacca, Borneo; the Indian Museum possesses a specimen from Siam.

106. FLATA INTRACTA, Walker.

Pœciloptera intracta, Walker, List Hom. B. M. Suppt. p. 116 (1858).

Bright pale grass-green: frons hardly longer than broad, slightly tricarinate, margins not elevated, slightly widened towards the face: pro- and meso-notum slightly tricarinate, the former arched: abdomen pale testaceous: legs partly reddish: tegmina with a pale testaceous marginal line; costa rounded; tip and interior angle somewhat rounded, especially the former; the exterior border hardly rounded, interior border tuberculate; veins and transverse veinlets numerous: wings white. Body long, $6\frac{1}{4}$; teg., 19 millims.

Reported from the Punjab.

107. FLATA FLACCIDA, Walker.

Flata flaccida, Walker, Ins. Saund. Hom., p. 50 (1858).

Pale testaceous: vertex elongated, narrower towards the front, with elevated borders: antennæ black: thorax tricarinate: abdomen somewhat paler than the thorax: anterior tibiæ and anterior tarsi mostly piceous: tegmina with a few minute pustules, veins very numerous, especially along the margin: wings white (*Walker*). Body long, $12\frac{1}{2}$; teg., 50 millims.

Reported from India.

108. FLATA INDOCILIS, Walker.

Pœciloptera indocilis, Walker, Ins. Saund. Hom. p. 55 (1858).

♀. Testaceous: vertex covered by the pronotum; frons not longer than broad, widening a little towards the face, with a slightly elevated border, tricarinate; face lanceolate, ecarinate: pronotum transverse, distinctly carinate, conical in front, slightly concave behind: mesonotum ecarinate: abdomen and legs whitish testaceous: tegmina with numerous discal veins and transverse veinlets, slightly convex along the costa, rectangular, and hardly rounded at the tips, straight along the exterior border, interior angle acutely rectangular, marginal veinlets rather short, mostly forked along the exterior border: wings white (*Walker*). Body long, $6\frac{1}{4}$; teg., $16\frac{3}{4}$ millims.

Reported from India.

109. FLATA ANGULIFERA, Walker.

Cromna angulifera, Walker, Ins. Saund. Hom. p. 57 (1858).

♀. Testaceous varied with green: head elongate, acutely conical; frons with elevated borders, ecarinate; face lanceolate: disc of thorax flat, slightly carinate on each side ; pronotum transverse, slightly arched : tegmina green, slightly testaceous along the interior border, with few veins and very few transverse veinlets on the disc, the marginal veinlets numerous, moderately long, costa convex for two-thirds of the length from the base, very slightly concave from thence to the tip which is rectangular like the interior angle, exterior border straight : wings white (*Walker*). Body long, 4¼ ; teg., 10½ millims.

Reported from India.

110. FLATA MARGINALIS, Signoret.

Phylliphanta marginalis, Signoret, A. S. E. F. (4 sér.) ii, p. 125 (1862).

Green-yellow, a little lighter beneath : tip of the head and outline of the tegmina yellowish-brown : wings whitish : head acuminate in front and covered almost entirely by the pronotum which is extended well beyond the eyes and allows only the cephalic prolongation of the head to be seen, then directed downwards it changes its contour or outline beyond the eyes by proceeding abruptly forwards in forming a right angle ; anterior margin rounded very convex, posterior margin concave : mesonotum very broad, convex, rounded in front, extremity rounded, median part flat, bounded by two complete ridges, on each side of which are two incomplete ridges which proceed from the anterior border. Lower angle of tegmina very acute, upper margin rounded, external angle rounded, external margin almost straight, sutural margin sinuate and rugose ; external cubital vein much elevated and furnished on each side with a number of small tubercles which as well as the vein are of a yellow brown : wings whitish : abdomen yellowish, genitalia brownish : feet yellow, anterior tibiæ, brownish (*Sign.*). Long, teg. extended, 18 millims.

Reported from Cochin-China.

111. FLATA FALCATA, Guérin.

Pæciloptera falcata, Guérin, Voy. Bélanger Ind. Orient. Zool., p. 469, t. 3, f. 5 (1834) ; Spin., A. S. E. F. viii, p. 430 (1839).

Colobesthes falcata, Am. & Serv., Hist. Nat. Ins. Hém., p. 523 (1843) ; Walker, List Hom. B. M. ii, p. 439 (1851) ;

Colobesthes albiplana, Walker, J. Linn. Soc. Zool. i, p. 92 (1856), p. 161 (1857) ; x, p. 180 (1867).

Entire body and feet pale golden-yellow ; head carinate on the sides, eyes black : thorax subcarinate : tegmina subtriangular, anterior margin rounded, very narrow at the base, external margin as large as the anterior margin, of a yellowish-white with an immense number of pale golden-yellow veinlets : wings milky white, semi-transparent, posteriorly dilated: abdomen compressed, yellowish; feet rather short, tarsi a little brunneous (*Guérin*). Long, 14; exp. 57 millims.

Reported from Borneo, Sumatra, Java, Singapore, Malacca, Burma.

Walker describes his *C. albiplana* thus:—"White: tegmina convex in front, rectangular at the tips, straight and quadrate from thence to the interior angle which is attenuated and very acute: posterior margin straight: wings hardly acuminate at the tips."

112. FLATA CONSPERSA, Walker.

Colobesthes conspersa, Walker, List Hom. B. M. ii, p. 440 (1851); Stål, Ofvers. K. V.-A. Förh. p. 490 (1862).

♂, ♀. Body tawny: head narrower than the thorax; vertex very short; frons conical above, fore-part paler: abdomen obconical, longer than the thorax, powdered with white: legs pale tawny: tegmina pale fawn-colour, sprinkled with black which is chiefly on the transverse veins, rounded on the anterior margin, truncate at a right angle along the tip, sinuate on the posterior margin at the tip of which they are produced into an acute angle or hook; veins pale tawny: wings milk-white. Body long, 11—15; teg., 38—46 millims.

Reported from India, Assam, Silhat: the Indian Museum possesses specimens from Sibságar, Sikkim, Calcutta.

113. FLATA ACUTIPENNIS, Walker.

Cromna acutipennis, Walker, J. Linn. Soc. Zool. i, p. 85 (1856).

Green, paler beneath: head and thorax with testaceous stripes; tegmina with a brown line extending from near the tip of the costa to one-third of the length of the hind border from the interior angle: wings white (*Walker*). Body long, 7¼; teg., 21 millims.

Reported from Malacca, Burma.

114. FLATA LUTESCENS, Walker.

Pœciloptera lutescens, Walker, List Hom. B. M. Suppt., p. 117 (1858).
Flata lutescens, Stål, Ofvers. K. V.-A. Förh. p. 490 (1862).

♂. Testaceous: vertex a little broader than long, indistinctly tricarinate, borders slightly elevated: pronotum arched, slightly unicarinate: mesonotum indistinctly tricarinate: dorsal apical appendage of abdomen long, slender, curved, sulcate: tegmina very slightly rounded along the costa; tip rounded; exterior border straight forming a well-defined right angle with the interior border which is tuberculate: veins and transverse veinlets rather numerous; marginal veinlets rather long: wings white (*Walker*). Body long, 6¼; teg., 19 millims.

Reported from N. India.

115. FLATA ALBATA, Stål.

Flata albata, Stål, Ofvers. K. V.-A. Förh. xi, p. 247 (1854) : Freg. Eug. Resa, p. 283 (1859).

Whitish : tegmina within two fuscescent bands at the apex, behind the middle with three, small, oblique, abbreviated, black bands ; geniculæ, tibiæ, and anterior tarsi, black-fuscous (*Stål*). Body long, 10 ; exp. teg., 33 millims.

Reported from Malacca.

116. FLATA MARGINATA, Walker.

Colobesthes marginata, Walker, J. Linn. Soc. Zool. i, p. 92 (1856).

Greenish-white : frons not broader than long, with a slightly elevated border and a slight ridge : sides slightly rounded : mesonotum on each side with a testaceous stripe which includes a luteous line : tegmina minutely tuberculate towards the base, rounded in front, rectangular at the tips, straight and quadrate from thence to the hind angle which is attenuated and acute : hind border straight, a pale luteous marginal band extending from three-fourths of the length of the costa nearly to the middle of the hind border (*Walker*). Body long, 8½ ; teg., 37½ millims.

Reported from Malacca, Burma.

117. FLATA PRYERI, Distant.

Flata (*Colobesthes*) *pryeri*, Distant, Trans. Ent. Soc., p. 153 (1880).

Body above and tegmina pale greenish ; wings pale greenish white : tegmina with the costal, inner, and outer margins (the last only half the length from the apex) narrowly and obscurely luteous, and with an angular black line on the disc, about half way from the base and about two-thirds the distance from the costal margin : body beneath and legs somewhat luteous. Face broad, convex, carinate in the middle, sides amplified : posterior angle of tegmina attenuated and acute, expanse at outer margin twice that of width near base : two well developed transverse, somewhat irregular, series of veinlets preceding outer margin and a third one situated midway between these and the reticulated area (*Distant*). Body long, 10 ; exp. teg., 36 millims.

Reported from Borneo, Penang.

118. FLATA ANTICA, Walker.

Pœciloptera antica, Walker (*nec* Westw.), List Hom. B. M. ii, p. 456 (1851).
Flata antica, Stål, Ofvers. K. V.-A. Förh. p. 490 (1862).

♀. Body yellowish-green: head very short; vertex extremely short, apparently almost concealed by the pronotum; frons flat, a little broader towards the clypeus, pale luteous and slightly rounded on each side, margins reflexed, very slightly sinuate where it joins the clypeus with a median ridge extending three-fourths of its length: clypeus slightly rounded, obliquely streaked on both sides: mesonotum with three green stripes of which the median follows a ridge: pectus luteous; abdomen obconical, crested, pale green and tinged with white above: legs pale luteous: tegmina whitish green, dilated and tuberculated along more than half the length of the hind border, truncated at the tips which form right angles with the hind borders; veins bright luteous especially along the fore-border towards the base where the whole wing has that hue unless closely inspected: wings white. Body long, 9½; teg., 25 millims.

Reported from India.

Species of uncertain position.

119. FLATA COROMANDELICA, Spinola.

Pœciloptera coromandelica, Spin., A. S. E. F. (1 sér.) viii, p. 440 (1839); Walker, List Hom. B. M. ii, p. 440 (1851).

♂, ♀. Head, dorsum of thorax, tegmina, grass-green, the rest including wings of a lighter green, veins deeper: second joint of the antennæ, exterior border of the external flap, and of the entire discoidal space of the tegmina orange: third joint of the antennæ and its filament, spines on tibiæ and tarsi, black.

Reported from Coromandel.

120. FLATA TRUNCATA, Linnæus.

Cicada truncata, Linn., Syst. Nat. ii, p. 704 (1758); Amæn. Acad. vi, p. 399 (1763).

Fulgora truncata, Olivier, Enc. Méth. vi, p. 571 (1791); Fabricius, Syst. Ent. p. 674 (1775); Spec. Ins. ii, p. 315 (1781); Mant. Ins. ii, p. 261 (1787); Ent. Syst. iv, p. 4 (1794); Syst. Rhyng., p. 4 (1803).

Pœciloptera truncata, Westwood, Trans. Linn. Soc. xviii, p. 151 (1841); Walker, List Hom. B. M. ii, p. 446 (1851).

Whitish-green, wings deflexed, compressed, posteriorly truncated, frons a little advanced, obtuse. (*Linn.*)

Reported from India, Java.

121. FLATA ADDITA, Walker.

Pœciloptera addita, Walker, List Hom. B. M. ii, p. 448 (1851).

Pœciloptera plana, Walker, List l. c., p. 463 (1851).

Flata addita, Stål, Ofvers. K. V.-A. Förh. p. 489 (1862).

Walker makes his species the same as Stoll's 'La Cigale chappe verte (Cigales, p. 76, t. 19, f. 103), which comes from Madras. Stoll describes it as having head and eyes white, body and feet pale yellowish green, tegmina green, powdered with white farinose, wings white. Walker's *P. addita* has body pale green; antennæ yellow; abdomen greenish yellow powdered with white: legs pale green: feet tawny: tegmina pale green powdered with white; veins green: wings milk-white. Walker's *P. plana* is only a faded specimen of *P. addita*.

♂. Body long, 6—7; teg., 25—29 millims.

122. FLATA LACTIFERA, Walker.

Pœciloptera lactifera, Walker, List Hom. B. M. ii, p. 450 (1851).

Body, legs and veins on tegmina pale stramineous; the two former powdered with white: mesonotum with two luteous stripes; tegmina and wings white, tegmina with numerous longitudinal and few transverse veins, anterior margin slightly rounded and along it a row of oblique, parallel, here and there forked, transverse veins. Body long, 6¼; teg., 21 millims.

Reported from N. India.

123. FLATA DISTINCTISSIMA, Walker.

Pœciloptera distinctissima, Walker, List Hom. B. M. Suppt., p. 114 (1858).
Flata distinctissima, Stål, Ofvers. K. V.-A. Förh. p. 490 (1862).

Pale green or whitish or testaceous: mesonotum with four more or less distinct luteous or testaceous stripes: abdomen and legs pale testaceous: tegmina with a reddish marginal line extending from the apical part of the costa to the base of the interior border which is slightly tuberculate; veins and transverse veinlets, testaceous: wings white. Long, 7½; teg., 21 millims.

Reported from N. China.

124. FLATA GUTTULARIS, Walker.

Pœciloptera guttularis, Walker, List Hom. B. M. Suppt., p. 111 (1858).
Flata guttularis, Stål, Ofvers. K. V.-A. Förh. p. 490 (1862).

Testaceous, whitish pubescent, rarely pale green: abdomen generally white: tegmina rarely tinged with green towards the base and along the costa, with about 18 minute black dots: wings white. Long, 9—10½; teg., 31—33 millims.

Reported from N. China.

125. FLATA (?) TRISCRIPTA, Walker.

Flata triscripta, Walker, Ins. Saund., p. 50 (1858.)

Green, thickly covered with white tomentum: antennæ, tarsi, and fore-tibiæ, black: wings white, iridescent: vertex and frons elongated, their borders elevated, parallel: pronotum much arched: tegmina with a slight green tinge, slightly testaceous along the borders and with two grayish, curved, parallel bands, the one marginal the other submarginal; three black discal lines of which the fore one forms a very obtuse angle, much longer than the other two, between which and the interior border the veins are black; costa and exterior border rounded; veins numerous; veinlets rather numerous (*Walker*). Body long, $8\frac{1}{2}$; exp. teg., 25 millims.

Reported from Penang.

126. FLATA (?) RECTIMARGO, Walker.

Pœciloptera rectimargo, Walker, Ins. Saund., p. 51 (1858).

Testaceous with a very slight rosy tinge: abdomen whitish testaceous: tegmina very pale rosy; wings white. ♂ has fore tibiæ, black: tegmina with a luteous tinge along part of both exterior and interior borders. ♀ has the tegmina with a luteous stripe near the costa. Body long, $10\frac{1}{2}$—$12\frac{1}{2}$; teg., 46—50 millims.

Reported from Penang.

127. FLATA SINENSIS, Walker.

Pœciloptera sinensis, Walker, List Hom. B. M. ii, p. 451 (1851).

Pœciloptera cereris, Stål, Ofvers. K. V.-A. Förh. p. 247 (1854).

Phyllyphanta cereris, Stål, Freg. Eug. Resa, Hem., p. 282 (1859); Ofvers. l. c., p. 489 (1862).

♂, ♀. Weak virescent: head briefly conically produced; frons reflexly margined with a very obsolete median ridge: thorax somewhat granulated towards the sides, with a slight ridge: scutellum parallel with three obsolete grass-green ridges, the lateral pair very obsolete: tegmina scarcely twice as long as broad, internal apical angle acutely produced; the exterior apical limbus and the internal limbus behind the middle densely adorned with small fuscous spots; clavus densely and external limbus towards the base sparingly, granulated; very many cells furnished with a weaker granule or somewhat elevated spot (*Stål*). Long, 9; exp. teg., 22 millims.

Reported from Hong-Kong.

Genus SELIZA, Stål.

Berlin Ent. Zeitschr. vi, p. 312 (1862).

Head narrower than the thorax; vertex transverse, concealed: frons of variable length, sometimes subtumid at the base, lateral margins somewhat acutish and slightly reflexed: obsolete ocelli present: antennæ short, first joint very short: thorax slightly arcuate, prominent in a small tooth anteriorly on both sides at the eyes; thorax and scutellum without ridges: tegmina moderately ample, contracted slightly near the apex, subtruncated at the apex, apical angles rounded, sprinkled irregularly with transverse veinlets, furnished between the apex of the clavus and of the subradial vein with a continued row of transverse veinlets, the space between the subradial vein and cubitus varying in length and breadth, and furnished towards the apex with transverse veinlets: veins on clavus united towards the apex: feet moderate, simple; last tibiæ bispinose behind the middle. Allied to *Flata*, Fabr., but very distinct in the structure and form of the tegmina (*Stål*): type, *P. vidua*, Stål.

128. SELIZA VIDUA, Stål.

Pœciloptera vidua, Stål, Ofvers. K. V.-A. Förh. xi, p. 248 (1854); Freg. Eug. Resa, Ins. p. 281 (1859).

Seliza vidua, Stål, Berlin Ent. Zeitschr. vi, p. 812 (1862).

Yellow-testaceous; frons furnished at the base with an arcuate ridge, and towards the base between the eyes with a longitudinal ridge: tegmina subparallel, one and a half times longer than the breadth, behind the middle both outwardly and inwardly sinuate, roundly truncated at the apex, adorned with a broad black-fuscous patch, clavus inwardly tuberculate. Head yellow testaceous, at the base itself with a subarcuate transverse ridge; frons somewhat longer than the breadth, reflexly-margined, furnished with a small ridge towards the base: antennæ flavescent, third joint fuscous: thorax yellow-testaceous, semicircularly subelevated behind the head: scutellum yellow-testaceous, convex, almost four times longer than the thorax: tegmina one and half times longer than the breadth, rounded outwardly from the base, then subparallel, sinuated outwardly and inwardly behind the middle, roundly truncate at the apex, testaceous-yellow; a large, longitudinal patch, abrupt before the middle, black fuscous; clavus longitudinally carinately elevated inwards: beneath with feet testaceous-yellow (*Stål*). Long, 5; exp. teg., 14 millims.

Reported from Malacca, India.

129. SELIZA TRUNCATA, Walker.

Flatoides truncatus, Walker, List Hom. B. M. ii, p. 419 (1851).

Seliza truncata, Stål, Ofvers. K. V.-A. Förh., p. 490 (1862).

♂. Body tawny, darker here and there: head a little narrower than the thorax; vertex conical, slightly concave; frons much larger than broad, widening from the vertex to the clypeus where it is rounded, reflexly marginate, and with a slight median ridge: eyes striped: thorax rounded in front slightly sinuate behind; nearly four times broader than long: mesonotum ferruginous, more than twice as long as the pronotum: abdomen luteous, obconical, not longer than the thorax: genitalia consisting of two curved appendages the tips of which cross each other; the lower one compressed, deep, grooved; the upper one longer and more slender: legs tawny: tegmina truncate at the tips, pale tawny: veins darker, very numerous towards the tips: wings almost colourless, brown towards the tips; veins brown, tawny at the base (*Walker*). Body long, 5; teg., 14½ millims.

Reported from N. India.

130. SELIZA FERRUGINEA, Walker.

Elidiptera ferruginea, Walker, List Hom. B. M. ii, p. 333 (1851).
Seliza ferruginea, Stål, K. V.-A. Förh., p. 490 (1862).

♂. Body tawny; head much narrower than the thorax; its two segments divided by a suture which forms an angle towards the hind border; hind segment yellow, piceous on the disc, its back forming a right angle with each side on which the eye is placed: fore segment piceous, rounded in front; frons rather broad, rounded on each side, piceous next the crown: rostrum tawny, reaching the hind coxæ: antennæ ferruginous, rather short, second joint nearly twice longer than the first: pronotum as long as the head very finely rugulose, somewhat truncated in front, slightly sinuate behind, disc of the mesonotum, piceous: abdomen obconical, not longer than the thorax: legs tawny, grooved, rather broad; a tooth on each hind tibia near the tip: tegmina ferruginous, darker at the tips, partly inflated at the base and along the hind border, near whose base there are a few rows of small tubercles; reticulated part occupying full one-third of the wing; fore-border slightly convex not dilated; a row of numerous short parallel veinlets between it and the first longitudinal vein; veins ferruginous: wings grayish (*Walker*). Body long, 6½; teg., 16½ millims.

Reported from India.

131. SELIZA LIGNARIA, Walker.

Flatoides lignarius, Walker, List Hom. B. M. ii, p. 413 (1851).
Flatoides minor, Walker, l. c., p. 417 (1851).
Flatoides dubitans, Walker, l. c., Suppt., p. 101 (1858).
Pœciloptera punctifrons, Walker, l. c., Suppt., p. 118 (1858).
Seliza lignaria, Stål, Ofvers. K. V.-A. Förh., p. 489 (1862).

♂. Body ferruginous: vertex with a large piceous spot on each side; frons and clypeus, tawny; mesonotum piceous: abdomen a little longer than the thorax, genitalia very long, upper one armed near the base with two spines, curved downwards towards the tip which approaches the middle of the tip of the lower one, the latter is very deep, especially at the tip where its depth is almost equal to its length: legs tawny: tegmina ferruginous, moderately broad, with a few darker spots; discs of the areolas almost colourless; veins brown; costal margin much dilated towards the base and along it a row of parallel transverse veins: wings gray, paler towards the base. ♀ has the abdomen shorter than the thorax, tip rounded and along it a groove with a transverse ridge. Body long, 5¼; teg., 16½ millims.

Reported from Hong-Kong.

Genus FLATOIDES, Guérin.

Icon. Règne Animal, Texte, Ins., p. 362 (1838): Stål, Hem. Afric. iv, pp. 237, 248 (1866): includes *Phalænomorpha*, Am. & Serv. Hist. Nat. Ins. Hém., p. 525 (1843); Stål, Berlin Ent. Zeitschr. vi, p. 312 (1862).

Body oblong, depressed, head produced before the eyes; vertex flat, sides parallel, confused anteriorly with the produced base of the frons which is not ridged: rostrum rather long, antennæ short: thorax elevated and flat on the disc, broadly sinuate at the base, sides flattened: tegmina ample, suboblong, costal membrane broad: feet simple, last tibiæ bispinose; last dorsal segment of the abdomen in ♀ furnished with a large produced plate, rounded at the apex (*Stål*).

132. FLATOIDES INDICA, Walker.

Elidiptera indica, Walker, List Hom. B. M. ii, p. 330 (1851).
Flatoides indica, Stål, Ofvers. K. V.-A. Förh., p. 489 (1862).

♂. Body pale tawny, mottled with darker colour: head conical, not longer than the pronotum, somewhat sinuate and with a brown stripe above, yellow and marked with a darker colour beneath where it widens to the clypeus: rostrum luteous, reaching to the hind coxæ; eyes very prominent: antennæ luteous, rather long, second joint longer than the first; pronotum conical, slightly excavated and indistinctly angular on the hind border: disc of the mesonotum very concave; a ridge on each side towards the tip which forms an acute angle: abdomen slightly obconical, a little longer and broader than the thorax: legs pale tawny, slightly grooved: a single black-tipped spine on each hind tibia: tegmina very pale tawny, almost colourless towards the tips, adorned on the veins with numerous brown dots, some of which are confluent and with a transverse brown band at one-third from the base;

veins pale tawny; a broad convex membrane along the fore-border and at the tip slightly waved, furnished with numerous veins, most of which are connected by a band of transverse veins: wings whitish: veins pale stramineous (*Walker*). Body long, $10\frac{1}{2}$; teg., 25 millims.

Reported from French rocks near Madras.

133. FLATOIDES FIMBRIA, Walker.

Elidiptera fimbria, Walker, List Hom. B. M. ii, p. 331 (1851).
Flatoides fimbria, Stål, Ofvers. K. V.-A. Förh., p. 489 (1862).

♀. Body pale dull luteous: head conical, a little longer than the pronotum; lateral margins slightly carinate; frons widest between the eyes: rostrum tawny, nearly reaching the hind coxæ: eyes not prominent: pronotum truncated in front, with a slight median ridge; hardly excavated on the hind border, paler than the head: mesonotum pale brown with two ridges which are oblique in front: abdomen elliptical, longer than the thorax, marked with black at the base: legs tawny, slightly grooved; a single black-tipped spine near the tip of each hind tibia: tegmina pale yellowish-brown with small irregular dark brown marks which are chiefly on the veins, rounded, much widened and furnished with numerous veins along the fore-border; veins pale tawny: wings pale gray, veins tawny (*Walker*). Body long, $10\frac{1}{2}$; teg., 27 millims.

Reported from Silhat.

134. FLATOIDES PRINCIPALIS, Stål.

Flatoides principalis, Stål, Ofvers. K. V.-A. Förh., p. 159 (1865).

♀. Testaceous-stramineous; tegmina turning into pale olivaceous, very slightly narrowed behind the middle, broadly rounded at the apex: wings sordid whitish. Head fairly produced before the eyes; vertex somewhat longer than the thorax, a little longer than broad, obtuse at the apex and sinuated on both sides; frons much longer than broad, fairly narrowed upwards, rounded on both sides towards the apex; a ridge proceeding from the base beyond the middle, distinct, furnished in the middle with two small ridges: clypeus without a ridge: median part of the thorax, elevated, somewhat concave anteriorly, rounded at the apex: scutellum with an abbreviated transverse ridge a little before the middle, recurved on both sides, and continued to the apex, black-fuscous at the apex: costal part of the tegmina transversely veined, very broad, narrowed towards the apex, occupying towards the base more than a third part of the tegmina; margins entire, not eroded: last pair of tibiæ bispinose (*Stål*). Long, 15; exp. teg., 38 millims.

Reported from Malacca, Ligor.

135. FLATOIDES (?) EMARGINATUS, Walker.

Flatoides emarginatus, Walker, J. Linn. Soc. Zool. i, p. 89 (1856).

Blackish: head, pectus, and legs dull dark testaceous; frons about twice broader than long with an elevated border and with three short ridges on the hind part: tegmina and wings blackish, a white limpid spot beyond the middle of the costa of the tegmina, which are slightly hooked. Body long, 6¼; exp. teg., 23 millims.

Reported from Singapore.

Genus ATRACIS, Stål.

Hem. Afric. iv, pp. 237, 250 (1866).

Body oblong, depressed: head much narrower than the thorax, more or less prominulous before the eyes: ocelli present: antennæ short: disc of thorax elevated and flat; thorax broadly sinuated at the base: clavus granulated at the base: last segment of the abdomen in ♀ produced in a large plate which is rounded at the apex: feet simple, last tibiæ unispinose (*Stål*).

136. ATRACIS PRUINOSA, Walker.

Elidiptera pruinosa, Walker, List Hom. B. M. Suppt., p. 75 (1858).
Flatoides pruinosa, Stål, Ofvers. K. V.-A. Förh., p. 439 (1862).
Atracis pruinosa, Stal, Hem. Afric. iv, p. 250 (1866).

Sordid testaceous: head and pronotum slightly marked with black: disc of the mesonotum mostly black: tegmina with a slight greyish bloom and slight, small, irregular and variable, brown or black marks; costal margin much dilated: wings greyish with darker veins. Vertex much broader than long, slightly angular in front, with a slight ridge and with elevated borders; frons a little longer than broad, with two nearly obsolete ridges and with slightly elevated borders; pronotum somewhat truncated anteriorly and with a very slight ridge (*Walker*). Body long, 7¼; teg., 21 millims.

Reported from N. China.

Genus COPSYRNA, Stål.

Rio Jan. Hem. ii, p. 69 (1862); Hem. Afric. iv, p. 237 (1866).

Body somewhat cylindrical or compressed: head much narrower than the thorax: antennæ standing up a little beyond the anterior margin of the genæ, second joint short or very short: ocelli not visible: tegmina rounded at the apex: last pair of tibiæ unispinose.

137. COPSYRNA MACULATA, Guérin.

Pæciloptera maculata, Guérin, Icon. Règne An. t. 58, f. 7 (1830-34); Voy. Bél. Ind. Orient., p. 470 (1834): Spin., A. S. E. F. viii, p. 423 (1839): Walker, List Hom. B. M. ii, p. 443 (1851); J. Linn. Soc. Zool. i, p. 92 (1856), p. 161 (1857).

Copsyrna maculata, Stål, Rio Jan. Hem. ii, p. 69 (1862).

Head, thorax, and wings yellowish-white, a little orange on the sides of the mesonotum and at the base of tegmina: head with an oblong patch in the middle of the frons, two approximated dots in the middle of the pronotum, two longitudinal parallel lines in the middle of the mesonotum, and four small dots on the posterior lateral margins, black: tegmina oblong, rounded at the tip, with several brown spots, almost black towards the anterior margin, quadrate, in several places confluent, leaving small white spaces in their midst and forming, towards the tip, three arched parallel bands on the external margin: wings white: beneath and feet pale yellow (*Guérin*). Long, 12; exp. teg., 50 millims.

Reported from Java, Malacca, Singapore.

Genus NEPHESA, Amyot & Serville.

Hist. Nat. Ins. Hém., p. 527 (1843): Walker. List. Hom. B. M. ii, p. (1851): Stål, Hem. Afric. iv, p. 237 (1866); Ofvers. K. V.-A. Förh., p. 773 (1870).

Head broad, straight or scarcely arched beyond the eyes; vertex in the form of a very short margin beyond the pronotum, with a slight transverse ridge which separates it from the frons which is broad and has neither a distinct longitudinal ridge nor a transverse groove: ocelli apparently absent: pronotum without a longitudinal median ridge; mesonotum with three almost parallel elevated lines: tegmina with longitudinal and forked veins; of a very fine substance, although slightly opaque; truncated at the tip; margins straight, a little broader at the tip than at the base; external border with very distinct transverse veins; wings almost as long as the tegmina and much broader at the tip than at the base: vulvar plates in ♀ broad, in form of an elongated cone, extending beyond the tip of the abdomen, with a sabre-shaped oviduct, divided into two equal plates, very robust and usually hidden by the vulvar plates: last pair of tibiæ unispinose (*A. & S.*) Differs from *Copsyrna* in having the tegmina truncated at the apex and the head only a little narrower than the thorax.

138. NEPHESA ROSEA, Spinola.

Ricania rosea, Spinola, A. S. E. F. viii, p. 400 (1839).

Nephesa rosea, Am. & Serv., Hist. Nat. Ins. Hém., p. 528 (1843); Walker, List Hom. B. M. ii, p. 433 (1851); J. Linn. Soc. Zool. i, p. 91 (1856): Stål, Ofvers. K. V.-A. Förh., p. 489 (1862); p. 773 (1870); Berlin Ent. Zeitschr. x, p. 393 (1866).

Pæciloptera completa, Walker, l. c., p. 241 (1851).

Flata matutina, Walker, l. c., p. 437 (1851).

♂, ♀. Head, thorax, and tegmina of a slight rosy colour: wings white: body beneath and feet of a pale yellowish colour (*A. & S.*). Long, 22 millims.

Reported from Philippines, Java, Singapore.

Species of doubtful occurrence.

138. *Pœciloptera luteimargo*, Walker, J. Linn. Soc. Zool. i, p. 92 (1856).

Green, with a slight testaceous tinge: frons a little longer than broad with the border slightly elevated and with a slight ridge; sides rounded: thorax ecarinate: pronotum nearly semicircular, extending over the vertex: mesonotum broader than long: tegmina subquadrate at the tips, about which there is a luteous brown-bordered band: wings limpid (*Walker*). Body long, $6\frac{1}{4}$; teg., $14\frac{1}{2}$ millims.

Reported from Singapore.

139. *Pœciloptera niveina*, Walker, J. Linn. Soc. Zool. i, p. 92 (1856).

White: in structure like the preceding: tegmina with a testaceous marginal band which extends from two-thirds of the length of the costa to the base of the hind border (*Walker*). Body long, $5\frac{1}{4}$; teg., $14\frac{1}{2}$ millims.

Reported from Mount Ophir (Singapore).

140. *Flata lyncea*, Fabricius, Ent. Syst. iv, p. 42 (1794); Syst Rhyng., p. 53 (1803).

Small: face flavescent, markings black: frons glaucous with a dull black dot on both sides cinctured flavescent and a small line in the middle: thorax glaucous with two rounded dull black spots anteriorly: tegmina and wings hyaline, exterior margin flavescent (*Fabr.*).

Reported from India.

III.—*The Hive-Bees indigenous to India and the Introduction of the Italian Bee.*—*By* J. C. DOUGLAS.

[Received January 11th;—Read Jannary 6th, 1886.]

As I am about to leave Calcutta, and for several months shall not be able to pursue further my investigation concerning the indigenous bees of the genus *Apis*, I present this preliminary paper. I hope on a future occasion to be able to give further details, after I have mounted, examined, and drawn some of the more characteristic specimens; I shall also obtain additional specimens and examine more nests of wild bees.

It is a striking fact that bee-keeping should have been of such trifling value in India, while it has existed elsewhere as a considerable industry from ancient times, has been carried on all over Europe and in parts of Asia and

Africa, in such different climates as those of Norway and Egypt, and on a large scale even in the New World, where no indigenous hive-bees exist.

The honey-bee is indigenous over the whole of India, and the climate is almost universally exceedingly favourable. In 1881, I applied to the India Office for any information available concerning Indian bees and apiculture. The matter was referred to the Government of India, who in 1883 published a collection of papers on the subject. In accordance with a resolution of the Government of India, a large number of specimens of honey, wax, and comb was sent to the International Exhibition at Calcutta in 1884. I collected a large quantity of specimens and many facts, personally, and from correspondents, who took great trouble to render me assistance in the enquiry. I found European entomologists had no more information on Indian bees than Dr. Gerstäcker had given in his paper* published in 1862. I received valuable assistance in my enquiries from Mr. E. C. Rye, through Mr. Tegetmeier of 'The Field;' and Mr. Horton Ellis placed at my disposal the correspondence the late Mr. Woodbury had with the late Mr. F. Smith and others. Herr F. Moravitz, of the St. Petersburg Academy of Sciences, was kind enough, in reply to a letter of mine, to give me such information as he possessed on the subject of Asiatic varieties.

General facts elicited by the enquiry were :—

1. That some species of hive-bee is apparently indigenous to every part of India and that in the plains several species exist.

2. That of the same species found in the hills and also in the plains, the variety inhabiting the colder climate is the more productive.

3. That honey is obtained from even the least productive varieties by suspending or inserting in walls vessels suitable for the habitation of the insects.

4. That bee-keeping of the primitive kind described above is common in the plains, but the more productive the species or variety of bee the less primitive the mode of cultivation; the lowest form consists in the use of an earthen vessel for a hive and in the destruction of all the bees when taking the honey, as in lower Bengal; the use of cylindrical hives made for the purpose of wooden logs or earth and wattle, where the bee is more productive, as in the Punjab; hives built in house-walls, as in Cashmere, where the bees and their brood-nests are not destroyed, but feeding on meal and sugar or honey is practised; and, finally, where *Apis mellifica* is found, in the Bashahr district of the Punjab, special bee-houses as high as 25 feet are built, and men devote their time to the care and protection of bees.

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* 'Ueber die geographische Verbreitung und die Abänderungen der Honigbiene nebst Bemerkungen über die ausländischen Honigbienen der alten Welt,' in XI. Wander-Versammlung Deutsche Bienenwirthe zu Potsdam, 1862.

5. That the products of the bees building in the open air in the plains are simply taken by driving off the bees by means of smoke; no attempt being made to cultivate the bees, or to "preserve" them in the technical sense.

6. That of about 65 specimens of honey sent to the Exhibition from different parts of the country and examined by me almost all were fermented, thin, and, from a European point of view, utterly unmarketable; samples of hill-honey said to be good were after being kept found by me to be inferior. This inferiority is due (1) to the honey being "unripe" or being taken from the combs of bees building in the open, which honey appears to be thinner than that stored in a hive-house or other close space, and (2) to the method of extracting, which admits of the honey being contaminated by nitrogenous matter from crushed larvæ and pollen.

7. Pure good honey of indigenous bees is unobtainable in Calcutta.

8. As *A. florea* builds inside houses and *A. dorsata* in caves, and under such conditions build larger and multiple combs, yielding larger quantities of denser honey, it appears very probable that, if a well ventilated hive with several openings or one large opening were used, these bees might be hived, and that their honey would then become dense like that of *A. mellifica*, but their comb-building would present difficulties in the way of extracting without injuring brood, and they would probably not defend their hive so as to keep their combs free from moth.

9. Many attempts, extending over several years, had been made by Europeans to hive indigenous bees in the plains, and to import European bees, but without success. *Apis indica* has been successfully cultivated in frame-hives in the hills.

10. The past failures have not been due to inherent impracticability, but to want of knowledge, skill, and experience, or of just appreciation of the initial difficulties. In the case of imported bees, a considerable sacrifice of bees was not provided for, nor were experiments continued sufficiently long to discover the local conditions of success.

11. The alarming accounts given of the viciousness of some Indian bees are not confirmed. The Rev. A. Bunker, Mr. F. Benton, Mr. Dathe, and myself have handled, or hived *A. dorsata*, or had it under observation. Instances of this bee attacking men and animals when wantonly or accidentally irritated by persons ignorant of bee-management prove nothing, as this behaviour is common to most bees in similar circumstances. The number of such accidents reported is extremely small considering the enormous number of bees' nests which exist even in the towns and the scanty clothing worn by the labouring population: three species exist in Calcutta: most gardens contain nests of two species. The relative irascibility of races of bees can only be ascertained by persons skilled in handling bees.

My observations and experiments have been continued since November 1882, and a number of gentlemen interested in the subject have pursued the enquiry during these years, made observations on wild bees, or collected and supplied me with specimens; the objects of this enquiry being to ascertain the habits, structure, affinities, and economic value of the several indigenous species and varieties. Several gentlemen had kept *Apis indica* in the hills. Mr. F. Todd of Landour sent to the exhibition specimens of super and extracted honey so obtained. Mr. Hunter of Landour has also kept this bee, and supplied me with valuable information. I have kept hives of *Apis indica* in Calcutta and taken many nests. Mr. Stocks of Berhampore, Bengal, has several hives of this bee: being more favourably situated than myself he has been much more successful than I in filling his hives, and his bees were evidently preparing to swarm late in December, a wide departure from the usual swarming time when not hived. Capt. R. Fenton, B.S.C., kept the Bhootan bee in Bhootan, and sent several stocks to Calcutta. I kept this bee in Calcutta for two years and had one hive swarm naturally. The Rev. A. Bunker of Toungoo had recently 8 hives of the variety of *A. indica* indigenous to that place: he was very successful in filling his hives, but ultimately lost most of his stocks from moth. Mr. Bunker and myself have had *A. dorsata* under observation, Mr. Bunker has hived it, and two experienced bee-masters from Germany have also hived it independently; but all attempts at hiving it permanently have been unsuccessful. Many combs of *A. dorsata* have been searched by me, and at my request, for drone-cells, but in every case the comb was found uniform throughout in the size of the cells. I have taken nests of *A. florea* and had this bee under observation. Mr. A. Bunker has hived it. It will be seen from the above that a series of laborious experiments and a large number of observations have been made extending over more than three years; and, besides the operations detailed, many persons have sent specimens and given information of great value.

APIS INDICA.—Found all over India, in the plains and on the hills; kept by natives in rude hives, most in the hills, but also in the plains; kept near Calcutta by villagers, who insert earthen vessels in the walls of their houses to serve as hives and destroy the bees periodically. Nests of this bee common in Calcutta. This bee differs in colour, being lighter in the plains than in the hills; it appears constant in size of body and of its cells all over India, in such different climates as those of Chumba, Landour, the Khassia Hills, and Lower Bengal; in habits it corresponds to *A. mellifica*, its stocks are much lighter than those of *A. mellifica*, but may be greatly improved by cultivation; and it is exceedingly liable to be attacked by moth. Most nests examined contained moth, and several were badly ravaged. Persons who have kept the bee complain of losing even the heaviest stocks from moth. It permits other insects to share its quarters, and does not keep its hive so clean as *A. ligustica:* the difference is very striking. The ravages of moth are worst during the rains, when the bees decrease in number. This bee swarms in the hot season and just before the rains, it works during the rains and the cold season, but is apparently less active in the cold weather than *A. florea.* A stock in a frame-hive prepared to swarm in the cold season, having been fed and otherwise protected. Near the hills this bee often migrates at certain seasons. The largest yield of honey reported from one hive is 30lbs.

Description of Nest.—In one nest examined the measurements were:—thickness of comb minimum ·59″, max. ·79″, distance between faces of combs ·27″ to ·39″, distance of combs from centre to centre ·98″ to 1·18″ (·98 appeared normal). A barrel-shaped hive from the Punjab was 18 inches deep and 11 inches in diameter, content about 1600 cubic inches; it contained 14 combs, a large quantity of drone-brood, and a large number of drones; the covered worker brood-comb was ·79″ to ·95″ thick, the drone brood-comb was ·98″ thick, the store brood-combs reached 1·18″ in thickness, the distance between the brood-combs was 315″, and the distance from centre to centre of store-comb was min. 1·3″, max. 1·772″ on outside combs; the normal distance between combs is less than ⅓″ and the thickness of the combs somewhat over ¾″; the worker-cells are 6 to the linear inch, and the drone-cells 5; actual measurements of worker-cells 3 cells = ·513″ = 5·85 per inch; 3 cells = ·494″ = 6·125 per inch, average 5·95. The measurements were made with a vernier.

THE BHOOTEA BEE.—All bees, including queen, very dark, almost or quite black, with light hair; comb—worker 5½ and drone 4½ cells per linear inch, drone-comb a full inch thick. Exceedingly mild in temper, in fact, cowardly; the sentinels commonly running in when those of *A. mellifica* would rush out and attack. Stocks apparently heavier than those of *A. indica.* Kept in Bhootan by Capt. R. Fulton and in Calcutta by myself. One hive swarmed naturally in Calcutta. Given *A. mellifica* worker-comb used it as drone-comb, bred large number of drones; yielded no surplus honey, 6 lbs only being found in hive at end of season. Very liable to moth.

The behaviour of both the above towards moth is quite different from that of *A. ligustica.* They do indeed attack the moth and tear down their combs; but if a larva of wax-moth be dropped into a hive of *A. ligustica*, the bees become excited, and at once sting the larva and carry it out. The Indian bees, on the contrary, do not notice the larva, the Bhootea bee particularly, and I have dropped larvæ between the combs without causing any commotion or exciting the bees to sting the larva.

This bee is much larger than *Apis indica*. It is certainly at least a constant variety or race differing widely from *A. indica;* possibly a different species: the young queen of the hive that swarmed "mated pure," although *A. indica* was present in large numbers in the neighbourhood, but the Bhootea drones were very numerous. If not a different species, it is certainly close to the debatable ground between "species" and "variety." It appears that the Bhootea bee and *A. indica* do not breed with *A. mellifica:* I bred about 25 Italian queens only 5 of which mated by reason of my having but very few drones; the honey supply apparently failed suddenly when not expected and the Italians destroyed the drones; I, however, let all the queens fly till mated, lost, or incapable of mating, but in no case was a queen impregnated by a drone of the Bhootea or Bengal species, though I had some thousands of Bhootea drones in the same apiary, and *A. indica* was plentiful. I found also that a queenless hive of *A. ligustica* would sting a Bhootea drone to death instantly, if he were placed on the flight-board: bees do not destroy their own drones by stinging them; they worry and starve them. Both *A. indica* and the Bhootea bee attempt to rob *A. ligustica*, but not to any important extent; and they both abscond very readily, unless they have been a month or more in the hive; *A. indica* is the more prone to abscond. One hive of *A. indica* had a laying worker when queenless.

Both the above species are what would be termed swarming bees, that is to say, they breed many drones and swarm frequently. The Bhootea bee is exactly midway in size of body and of cell between *A. indica* and *A. mellifica*, and it differs from both more widely than do any two varieties of *A. mellifica* from one another. Though the Egyptian variety (*A. fasciata*) builds a slightly smaller comb, it can use the comb of *A. ligustica*.

Apis dorsata builds under boughs, normally a single comb, but under favourable conditions, as in caves, it duplicates its comb. Cells 4½ to the inch. No drone-comb differing from worker found in any comb examined. In a comb from S. Coimbatore the actual measurements were 3 cells = ·645″, *i. e.*, 215″ each, or 4·65 cells per inch; other three were ·225″, ·218″, ·230″, average 4·425 per inch. The Sikkim variety is larger than that found in the plains, and the hill varieties generally appear darker and larger than those of the plains; specimens from Jubbulpore are very light-coloured. A comb of the Sikkim variety would be interesting to ascertain if it differs from the comb of the plains, and if it has drone-cells. In many parts it migrates at certain seasons, and it leaves its comb readily on failure of pasturage. It is reputed vicious, but this is not confirmed by experts; nor is its sting exceptionally severe. This bee is confined to the plains or does not extend beyond about 3000 feet of altitude. It builds no special drone-comb, all its cells are the same size, and its drone is not differentiated from the worker as is that of other species, but is of the same size and shape as the worker, excepting that it has the eyes meeting, as in the drone of *A. mellifica.*

APIS FLOREA OR FLORALIS, the latter being a literary correction only. This is the smallest known species of the genus, and its drone is relatively to the worker the largest and most differentiated from the female and worker. It inhabits the plains or not above 3000 feet of altitude, its worker-comb is very regular, the drone-cells have much thicker walls and are cylindrical. Drone-cells 6, worker-cells 9 to the linear inch. Actual measurements of a comb from South Coimbatore gave 5·725 drone and 8·925 worker-cells per inch. When this bee builds on a thin branch, its comb is very small, about the size of a man's hand, and single; but built in a building the comb may attain to several square feet in area and be partially duplicated. This bee is very mild in disposition, and its sting is not so severe as that of *A. indica.* It may be mentioned that bees generally appear readily to become familiarized with man's presence, the bees of a hive frequently opened and bees building near roads and paths and in houses appear to become less irritable and impatient of interference than those which inhabit secluded places, but bees that are starving, diseased, robbing, or being robbed are liable to become irritable. This species appears very constant in size and colouring.

This bee is described and figured by Latreille as "*A. indica*, Fab.," and *A. indica*, as *A. socialis;* the descriptions are very imperfect and the figures inaccurate; full descriptions will be given hereafter.

THE BUSHAHR BEE.—This is a variety of *Apis mellifica.* The specimens I have are dark with black scutellum, excepting in one specimen, in which that part has a dark red mark on it. The comb corresponds exactly with that of *A. mellifica.* This bee is found in the Bushahr district of the Punjab and probably elsewhere along the northern frontier; it is said to be readily manipulated, a trait not common amongst the varieties with a light scutellum. It is no doubt productive, as the natives of Bushahr build stone houses 25 feet high for its reception and follow the care of bees as a special industry. This bee would prove of considerable economic value if acclimatized in other parts of India. The few drones I have are smaller than those of *A. ligustica.* Its power of resisting moth are unknown.

HAZARA VARIETY.—This appears to be a variety of *A. mellifica.* Specimens of workers only are known to me, and they are perceptibly smaller than *A. ligustica* and than the Bushahr variety. It has a yellow scutellum and is striped yellow shaded off at the sides, as in the Egyptian bee (*A. fasciata*). This variety would no doubt prove productive in the plains, but would probably resemble the Egyptian bee in its qualities.

The principal points on which information is required with reference to the above two varieties of *A. mellifica* are :—proneness to breed drones and to swarm, weight of stocks, liability to moth and other parasites and to disease, liability to have laying workers, liability to suffer from robbing, prolificness and longevity of queens, sensitiveness in breeding to variations of honey-supply, whether easily manipulated, *i. e.*, if excitable and if readily subdued, if they keep on their combs or fall off readily, and if they are readily shaken off, what quantity of surplus honey they collect. Persons who are favourably situated for obtaining information on any of these points have it in their power greatly to further the interests of Indian apiculture.

Many persons have speculated on the origin of *A. mellifica*, whether it originated in a cold, in a temperate, or in a warm climate, under what conditions, and from what kind of progenitor, it was developed ; but based as it was on data furnished by a single species their reasoning must, it is obvious, have been very far from conclusive. The different species and varieties found in India may afford data most pertinent to the questions at issue, and, as the hive-bee has been so widely and closely studied, a complete knowledge of its *different species* and their distribution would be of general biological interest.

DISTRIBUTION.—Dr. A. Gerstäcker concludes, from an examination of his specimens (1862), that the Southern Italian variety of *A. mellifica* extends to the islands and mainland of Asia Minor and the Caucasus, and the Egyptian variety over Syria and Arabia, through imperceptably minute variations in the Himalayas, on to China ; he had only one specimen from the Himalayas and one from China for examination. Herr F. Morawitz kindly informed me (1882) that in Asiatic Russia the hive-bee is only found in Siberia and Transcaucasia, in the eastern territory the form common to Northern Europe, in the latter only *Apis ligustica*. The honey-bee has not been brought from Central Asia by any Russian traveller ; nor has Trschewalsky found it in any of the Chinese provinces visited by him. Efforts had been made to introduce it into Taschkend, but up to the date of Herr Morawitz's letter without success. I may state that attempts to introduce the hive-bee into Australia have repeatedly failed,—as they have done in the case of India,—but ultimately proved successful. The variety of *A. ligustica* referred to by Herr Morawitz is no doubt that found in Southern Italy and distinguished by the yellow scutellum ; the Hazara bee has this character. I defer discussing the relations of the Indian species (*A. indica* and *A. mellifica*) to the European species, until I have made a full examination of the specimens I have collected.

In *A. florea*, we have the worker-cells very much smaller than the drone-cells, we find the small cells beautifully regular and quite hexagonal, whereas the drone-cells, being so large comparatively, are cylindrical and have thick walls. In this fact we have a confirmation of the theory that the hexagonal form of the bee's cell is due, not to design on the part of the bee, but to the crowding together of cells which would, if constructed separately, be cylindrical.

The origin of the European species has been repeatedly discussed. Dr. Gerstäcker has discussed the opinions of a number of authorities in his paper referred to above, the principal question being whether the hive-bee is indigenous to Germany and Northern Europe, or whether it was introduced from a warmer climate. The arguments adduced in favour of its being indigenous to Northern Europe are the great difference between the yellow striped bees of Southern and South-Eastern Europe, Northern Africa, and Asia Minor and the dark-coloured bees of Northern Europe; the constancy of the yellow-striped Italian and the dark-coloured northern varieties when they are kept separate, even though the striped variety be introduced into Germany; and that the races were in contact in the region of the Alps before the introduction of the Italian bee into Germany. It may be noted that these varieties breed freely together, and that the Italian bee was only introduced into Germany in 1853. I find that the Hazara variety, from the Hazara district of the Punjab, has the light scutellum, is somewhat smaller than *A. ligustica*, has the yellow bands ending at the sides, and light hair, that it corresponds, in fact, to the Egyptian bee; and that the Bushahr bee has the dark scutellum, is somewhat larger, and dark-coloured like the Northern European variety. *Apis indica* of Lower Bengal is a yellow-striped bee; the Bhootan bee is very dark indeed and also larger; *Apis dorsata* appears also to vary in the same way, the varieties found in Lower Bengal and Jubbulpore being lighter in colour and smaller than that found in Sikkim: the variation in size and colour thus following the same law in India as in Europe and Northern Africa. The arguments advanced by Dr. Gerstäcker in favour of the Northern European bee being descended from progenitors introduced from the south are, the proved possibility of its introduction from the south and acclimatization, and the absence of wild bees in Northern Europe, whereas they are common in the south. Dr. Gerstäcker objects that the hive-bee introduced into America has not confined itself to the southern parts as it would have done if it had been of southern origin, but that the northern and central states have appeared most favourable to it; and that hive-bees do occasionally run wild, and were once wild, in Germany, but that the changes due to extended cultivation of the land and the more complete domestication of the insects render this very unfrequent. It may be replied that in India in the plains wild bees abound not only in the forests but in the large towns, and that Cuba and warm countries generally are favourable to bee life, but that the varieties and species found wild differ widely with climate, and that those of one climate do not naturally—and for obvious reasons—spread into an adjacent widely differing climate, for wild life in which their differentiation has unfitted them, but that, when man cultivates the animal under different climatic conditions, his care removes the adverse conditions. The data supplied by *Apis mellifica* alone must leave the question inconclusive, but in India we find several species each varying with locality, all wild, and the data supplied are of higher value. We find the same law as to variations of colour and size with climate in India for three species certainly as is found in Europe for *A. mellifica*. We find *A. dorsata*, apparently the least differentiated form, building no drone-cells, the drone being about the same size and shape as the worker, differing, however, in the head; this species builds normally one comb under a bough, the worker is long in shape, resembling somewhat in this respect the queens of the other species. *A. florea* is apparently highly differentiated, its drone differing most in size and shape from the worker. The queens of *A. mellifica*, *A. florea*, *A. indica*, the Bhootea, and the Bushahr bees differ much less in size and shape than do workers and drones of the respective races, the perfect female being the least and the drone the most differentiated. *A. florea* and *A. dorsata*, living under more constant conditions, might be expected to vary less, respectively, than the bees building in cavities fitting them for inhabiting widely different climates, *e. g.*, *A. indica* of Lower Bengal and the Bushahr variety of *A. mellifica*. The nest of single-comb bees is simpler than that of multicomb bees and obviously less protective, for the bees are spread out instead of being able to cluster; the simpler nest is obviously only suited to warm climates. But the single-comb bees duplicate their combs under favourable conditions; they inhabit caves and other cavities, *A. florea* building in houses; under these conditions they duplicate their combs and their honey becomes denser like that of *A. mellifica*, but they do not appear to start a number of parallel combs like *A. mellifica*. The nest of the single-comb bee merges into that of the multicomb bee, and the bee building in the open air merges into the bee inhabiting a cavity. In regions near the hills and mountain slopes all the bees appear to migrate: *A. dorsata* and *A. florea* readily move from place to place, in the plains, if food fails: *A. indica* readily absconds if interfered with, while *A. mellifica* does not abscond, excepting under severe pressure, as when the number of bees is reduced to very few. If we suppose *A. mellifica* descended from a progenitor, somewhat like *A. dorsata*, inhabiting a hot climate, we are enabled to explain many of its habits: the habit of clustering on a branch when swarming, no longer of use, is a survival of a habit of its progenitor: so also its absconding under pressure and the rearing by it of drones in worker-cells so very common under certain conditions. Migrating would evidently be much easier for a species building on a branch in a warm climate than for one to which a cavity was necessary in a temperate or cold climate: hence this habit would tend to disappear, as in *A. mellifica.* It may be urged that the storing of food proves the bee indigenous to a climate with a pronounced winter, but even in the tropics there are periods when flowers are scarce or a season of heavy rain prevents the collection of food, and the safety of the brood renders some stores essential; nor could the large quantity of brood necessary to keep up the race in spite of its enemies and hardships be dependent on food gathered as required. In Lower Bengal, *A. indica* collects very little, if any, surplus honey; the surplus of a single year is enormously increased by cultivation, and bears no fixed relation to that which would be produced by the same bee naturally; an enormous number of stocks of *A. indica* perish every season from moth and want of stores. The Italian bee is esteemed for its relatively great ability to protect itself from moth, and to keep its hive clean and free from other injurious insects; the black bee of northern Europe is inferior in this respect; this is probably an acquired peculiarity possibly due to many centuries of protection by man. *A. indica* occupies necessarily any cavity in wall or tree it can find, and it could not defend the usually large entrances to such cavities even if it tried: hence it commonly shares its dwelling place with other insects, and it cannot keep this dwelling clean; in a hive it permits vermin to collect and allows an accumulation of *débris* to harbour its enemies. It appears to defend its combs rather than its hive, as would a single-comb bee building in the open. I purpose, when I can find leisure, to give fuller descriptions of the several species and varieties of Indian hive-bees after making accurate drawings and measurements and examining carefully a large number of specimens of the numerous varieties of the different species. Efforts will be made to ascertain the economic value of the Bushahr variety of *A. mellifica.* Mr. Minnickin, the officer in charge of the district in which this bee occurs, has been supplied with appliances, and I have had the pleasure of explaining and demonstrating to him their use. I hope some stocks will be sent to Simla and hived there; and I have suggested that the Punjab Government should supply some stocks of this and of the Hazara bee to a number of gentlemen who had expressed their willingness to introduce the Italian bee. It is to be regretted that the economic value of this bee cannot be investigated by an expert.

INTRODUCTION OF THE ITALIAN BEE.—The acclimatization of a foreign animal in a new habitat demands justification, and should be recorded; I know of no more fitting record than the publications of this Society in whose garden the first Italian queens have been bred, the first honey collected by Italian bees harvested, and the first stock distributed in India. I decided to introduce a foreign race because little was known of the native races, and the information then available shewed that the latter were either of inferior economic value, or that years of study under cultivation would be necessary to discover the best mode of treating them. All the most experienced bee-masters I consulted agreed with me in considering India a most favourable field for apiculture, and that to ensure success it merely required that the subject should be taken up by some one who had sufficient knowledge and skill to adapt his method to the local conditions. I found the former attempts had failed from causes I well understood. The Duke of Buckingham gave me full information about his effort to introduce bees while he was Governor of Madras. The present editor of the British Bee Journal, Mr. W. Cowan, agreed with me as to the cause of this failure. The Rev. J. S. Woodside, an American Missionary, tried to introduce the Italian bee and failed. I chose Italians because the most extended experience in Europe and America had demonstrated their superioity: they are very productive, proof against moth even when weak, easy to manipulate, thoroughly understood, readily and cheaply obtainable in Italy, and—a minor point—they are a handsome race. Herr F. Morawitz recommended to me the Egyptian bee as most likely to be suited to the climate. This bee was introduced into Germany by the Acclimatization Society at Berlin in 1864, brought from Egypt by Herr Hammerschmidt, but in the best hands it was found of little value and not preserved; I have since discovered in the Hazara variety a race apparently nearly allied to the Egyptian bee. The Cyprian bee has been strongly recommended and much puffed in dealers' advertisements—a single hive in one season is said to have yielded 1000 lbs. of surplus honey; but this variety is at least uncertain in temper, it cannot be regarded as in a higher than the experimental stage, and some of the most experienced bee-keepers in America are giving it up; it and the Syrian and Holyland varieties are most certainly unsuited to the purpose of introducing bee-culture amongst a people who wear very little clothing and have as yet no skill in bee-management. The black bee of England and Northern Europe is inferior in its power of resisting moth, and has been replaced in America by the Italian for this reason; the Southern Italian bee is inferior in temper to the Northern Italian, the race referred to generally as the Italian bee; hence I selected the latter race, and I strongly recommend that it be exclusively imported so long as it is necessary to import bees. The economic value of the Bushahr, Hazara, and possibly other Indian varieties of *A. mellifica* which may be discovered hereafter, remains to be ascertained; it is not likely to be higher than that of *A. ligustica;* and, from Mr. Minnickin's account, I should think it would prove lower. I think the Hazara race will probably prove to be like the Egyptian or Syrian.

I have imported Italian bees, a large proportion of which died or contracted disease or debility on the voyage so that they proved useless, or in some cases had to be destroyed some time after arrival; twice the imported bees were in great danger of extinction. I have sent 3 stocks to Landour, one of which was lost by an accident immediately after arrival, and the others are doing well and are reported by the expert Mr. F. Todd who has them, to be "Splendid honey gatherers and easy to manipulate." I had to leave Calcutta on leave, and in my absence I lost some queens and bees, but I have four stocks at the Alipore Jail Apiary, two of which will shortly be sent to Burmah, to the Rev. A. Bunker, who has been keeping indigenous bees for some time. The difficulty of importing queens has now been surmounted; they can be imported safely and well with very little risk for about 10 shillings each. I have devised a portable hive and water-boxes which I believe will enable me to import bees as required without the enormous losses hitherto experienced. I am about to send the pattern hive to Italy and to order four stocks as a trial; if successful, I have no doubt there will ultimately arise a trade in bees and queens between Italy and India, as there is between Italy and America and other countries. I have written a handbook for India which has been published by the Government of India, and this has excited much interest in the subject. I have distributed literature and shewn a number of persons how to handle bees and to use the modern appliances. I have designed a set of simple cheap appliances suited to Indian requirements, and these are on sale at the Alipore Jail. I have issued a large number of hives, etc. Finally, by taking 80 lbs. of honey and by breeding a large number of queens, of which five were impregnated, I have demonstrated that *A. mellifica* can be successfully cultivated in Calcutta even under the unfavourable conditions presented by weak stocks placed in the centre of a large city, under climatic conditions not previously studied, with the necessity for devising suitable and cheap appliances, and other difficulties always presented by the introduction of a new industry. I find it better in Calcutta to place the hives in the open, not under trees or verandahs; I use a double-walled hive painted white with a chaff cushion under the roof; the flight-hole in the hot weather should be at least 12 inches long by $\frac{3}{8}$" wide; it may be contracted in the cold weather. In the very hot weather the hive should be shaded by a durmah mat on the roof, or a mat shade, from the afternoon sun. In a short time I hope to be able to arrange for the supply of bees direct from Italy; my official engagements preventing me from breeding queens and distributing bees from Calcutta as I had intended.

Of the enemies of bees, the larger hornets are troublesome for a short period of the year. They carry off bees, and large flight boards should be removed from hives at this season in an apiary. A boy with a bag-net to catch and kill the hornets and the destruction of hornets' nests with turpentine or other agents would be appropriate remedies. The wasp or yellow hornet does no harm, unless the hive entrance is too wide. Weak stocks always require special protection, but I have found *A. ligustica* well able to defend itself against wasps, and even the large hornets have been found by me dead on the flight-board. The large death's-head moths are said to rob bees in Europe, and to be proof against the bees' anger. I once found two dead moths inside a hive; they were dry and had evidently been killed by the bees. On another occasion I noticed great excitement in a hive and found it due to a large number of bees engaged in removing a death's-head moth they had just killed in the entrance to the hive; this moth was $2\frac{1}{2}''$ long from head to tips of closed wings. It is probable that this moth robs *A. indica* and *A. florea*. Toads sit in front of hives in the evening and catch the bees, unless the hives are occasionally visited at this time and the toads destroyed. Lizards visit hives and live under the hive or get between the walls of hives. A nest of large black ants once attacked a hive of *A. ligustica*, but such occurrences as this are easily guarded against. It does not appear that the enemies of the hive-bee are worse in India than elsewhere, excepting the large hornets, and these would be readily dealt with in the case of apiaries; in England, boys are paid a trifling sum for queen-wasps, and nests of these pests are destroyed by means of a little turpentine; traps are also used. The fact that the wild hive-bees are so exceedingly abundant proves they are able without man's protection successfully to struggle against their enemies, while their number must act to reduce the number of the cultivated bees destroyed.

IV.—*List of the Lepidopterous Insects collected in Tavoy and in Siam during* 1884-85 *by the Indian Museum Collector under* C. E. PITMAN, ESQ., C. I. E., *Chief Superintendent of Telegraphs.* Part I. Heterocera.—*By* FREDERICK MOORE, F. Z. S., A. L. S. *Communicated by the* NATURAL HISTORY SECRETARY.

[Received and read Feb. 3rd, 1886.]

Family **Sphingidæ.**

1. CYPA DECOLOR, Walker, Catal. Lep. Het. B. M. VIII, p. 255.
Ponsokai, Siam.

Family **Zygænidæ.**

2. TRYPANOPHORA HUMERALIS, Walker, Catal. Lep. Het. B. M. VII, p. 1593.
Tavoy.

Family **Chalcosiidæ.**

3. MILIONIA PYRIZONEA, Butler, Ann. & Mag. Nat. Hist. 1882, p. 375.
Tavoy, and Ponsokai, Siam.

4. CODANE LEUCOMELAS, n. sp.

Female. White: forewing with a broad transverse purplish-black apical band, and a narrow medial oblique band, decreasing to a point at its lower end and from the upper end of which the costal border is also black; three white obliquely disposed subapical spots, and a very narrow one with bordering white cilia at the apex: hindwing with a similar coloured marginal band, and a single white apical spot. Thorax, head, and antennæ bluish-black; palpi, legs, and abdomen white.

Expanse $1\frac{9}{10}$ inch.

HAB. Ponsokai, Siam.

This species differs from the same sex of *C. zelica*, on the forewing, in the apical and middle black band being narrower, the inner margin of the apical band crossing at the angle of the upper median vein, at which point it is slightly bent, and is thence straight to the posterior angle; the middle band is about half its width, and ends in a point posteriorly, the three subapical and apical white spots are similar: hindwing with a somewhat narrower black marginal band, and a larger white apical spot.

Family **Nycthemeridæ.**

5. NYCTHEMERA COLETA, Cram. Pap. Exot. IV, pl. 368, f. H.
Tavoy.

6. NYCTHEMERA TRIPUNCTARIA, Linn. (Cram., Pap. Exot. I, pl. 22, f. E.)
Tavoy.

Family **Lithosiidæ.**

7. PERIDROME SUBFASCIATA, Walker, Catal. Lep. Het. B. M. II, p. 446.

Tavoy.

8. NEOCHERA MARMOREA, Walker, Catal. Lep. Het. B. M, VII, p. 1674.

Tavoy.

9. HYPSA STRIGIVENATA, Butler, Trans. Ent. Soc. Lond. 1875, p. 321.

Tavoy.

10. BARSINE COCCINEA, n. sp.

Forewing vermillion-red; crossed by an olivescent-grey inwardly-oblique subbasal band, an outwardly-oblique medial band, and a broader inwardly-oblique discal band; the two former bands joined together at their upper end, and to the latter band at the lower end; a small similar coloured basal spot, and a series of oval spots bordering the outer band, the interspaces between the bands and the spots being yellow; cilia yellow; hindwing pale pinkish-red, the veins yellowish. Thorax, head, palpi, antennæ, and legs vermillion-red; tegulæ with an olivescent-grey spot.

Expanse $1\frac{2}{10}$ inch.

HAB. Tavoy.

Family **Liparidæ.**

11. NUMENES INSIGNIS, Moore, Catal. Lep. Mus. E. I. C. II, pl. 10, f. 6.

Tavoy, and Ponsokai, Siam.

12. LYMANTRIA ASÆTRIA, Hübn., Samml. Exot. Schmett. II. f. 1.

Tavoy.

Family **Hepialidæ.**

13. HEPIALUS TAVOYANUS, n. sp.

Male. Pale vinaceous-brown: forewing with some darker brown quadrate costal marks, some also within and below the cell, an irregular-shaped zigzag-bordered discal band, a marginal row of small hemispherical spots, and a marginal black conical spot between the lower median and sub-median veins; all these markings with a slender ochreous border; hindwing darker vinaceous-brown, ochreous at the base; cilia ochreous from below the upper median vein. Hind part of thorax and base of abdomen clothed with ochreous hairs.

Expanse $1\frac{4}{10}$ inch.

HAB. Tavoy.

Family **Urapterygidæ.**

14. THINOPTERYX CROCOPTERATA, Kollar in Hügel's Kasch. IV, p. 483.
Tavoy.

15. ENCHERA PITMANI, n. sp.

Silky white. Forewing crossed by a pale cinereous-black, outwardly recurved, slender antemedial band, a broader medial macular band including a portion within the cell, followed by three postmedial bands, the inner one of which is indistinct, the next slender, palest, and the outer one macular; beyond is a submarginal row of prominent black oval spots, and a marginal row of less prominent spots; base of the costa with spots between the bands: hindwing crossed by three short slender similar coloured bands, the inner one being very indistinct, followed by a prominent sub-marginal row of black spots, and less distinct marginal spots. Body white; head and palpi black; forelegs, and tarsi cinereous-black.

Expanse ♂ ♀ 2½ inches.
HAB. Tavoy.

Family **Microniidæ.**

16. MICRONIA CASEATA, Guén., Phal. II, p. 27.
Tavoy, and Ponsokai, Siam.

17. MICRONIA ACULEATA, Guén., Phal. II, pl. 13. f. 8.
Tavoy, and Ponsokai, Siam.

18. MICRONIA VAGATA, Moore, P. Z. S. 1867, p. 622. pl. 60, f. 18.
Tavoy.

19. MICRONIA OBTUSATA, Guén., Phal. II, pl. 5. f. 6.
Tavoy.

Family **Palyadæ.**

20. EUMELEA ROSALIA, Cram., Pap. Exot. IV, pl. 368. f. F.
Tavoy.

Family **Euschemidæ.**

21. EUSCHEMA MILITARIS, Linn., S. N. I. 2. p. 811.
Hills between Burmah and Siam.

22. EUSCHEMA SODALIS, n. sp.

Nearest allied to the Bornean *E. subrepleta* (= *bellonaria*, Guén., Phal. pl. 18). Comparatively longer in expanse of wings, and of a much paler yellow colour. On the forewing the three black basal bands are narrower, and, though entire in their length, are well separated at their ends, the adjoining outer yellow parts are broader in extent, and the portion below the lower median and submedian vein is continuous, not being formed by two well-defined parts as in *subrepleta*. On the hindwing the black markings are similarly disposed, but the discal zigzag band is much narrower, being only half the width of that in *subrepleta*, thus giving a wider and continuous outer yellow portion; the submarginal spots are narrower, separated, and more or less disconnected from the marginal spots.

Expanse 2½ to 2¾ inches.

HAB. Tavoy.

23. EUSCHEMA LUNULATA, Butler, Ann. & Mag. Nat. Hist. 1882, p. 375.

Hills between Burmah and Siam.

24. EUSCHEMA HORSFIELDII, Moore, Catal. Lep. Mus. E. I. C. II, pl. 8, a. f. 7.

Tavoy.

Family **Hyblæidæ.**

25. HYBLÆA CONSTELLATA, Guén., Noct. II, p. 391.

Tavoy.

Family **Ophideridæ.**

26. RHYTIA HYPERMNESTRA, Cram., Pap. Exot. IV, pl. 323. f. A. B.

Tavoy.

27. OTHREIS FULLONICA, Linn. (Cram., Pap. Exot. I, pl. 77. f. C.)

Tavoy.

28. PHYLLODES VERHUELLII, Voll., Tijd. v. Ent. I, p. 161. pl. 8.

Tavoy.

29. POTAMOPHORA MANLIA, Cram., Pap. Exot. I, pl. 92. f. A.

Tavoy.

Family **Erebiidæ.**

30. SYPNA APICALIS, Butler, Tr. Ent. Soc. Lond. 1881, p. 206.

Tavoy.

Family **Ommatophoridæ.**

31. PATULA MACROPS, Linn. (Cram., Pap. Exot. II, pl. 171. f. A. B.).

Tavoy.

32. ARGIVA HIEROGLYPHICA, Drury, Exot. Ins. II, pl. 2. f. 1.

Tavoy.

33. NYCTIPAO EXTERIOR, Walker, Catal. Lep. Het. B. M. XIV, p. 1306.

Tavoy.

34. NYCTIPAO CREPUSCULARIS, Linn. (Clerck, Icones, pl 53. f. 3. 4.).

Tavoy.

Family **Dysgoniidæ.**

35. DYSGONIA CRAMERI, Moore, Lep. Ceylon, III, p. 177. pl. 171. f. 2.
Tavoy.

36. CHALCIOPE MYGDON, Cram., Pap. Exot. II, pl. 156. f. G.
Tavoy.

37. CALESIA LEUCOSTIGMA, Kollar (Moore, Lep. Ceylon III, p. 182).
Tavoy.

38. CALESIA HÆMORRHOA, Guén., Noct. III, p. 258.
Tavoy.

Family **Remigiidæ.**

39. CAUNINDA ARCHESIA, Cram., Pap. Exot. III, pl. 273. f. F. G.
Tavoy.

Family **Thermesiidæ.**

40. PLATYJA LOBIFERA, n. sp.

Female. Dark vinaceous-brown, numerously speckled with cinereous-grey scales: forewing crossed by an ochreous-white speckled bordered, black, sinuous, basal line, an antemedial line, and an irregular recurved, sinuous, postmedial line, the latter partly encircling a whitish lower discal lobate spot, then curving upward to end of the cell, and from thence downward to the posterior margin; a marginal row of ochreous-white points: hindwing cinereous-brown along the costa; with a short black lunular with whitish outer border extending from the anal angle to near the apex; a marginal row of whitish points. Body, head, palpi, and legs cinereous speckled; third joint of the palpi, and tarsal joints with an ochreous-white band.

Expanse $1\frac{8}{10}$ inch.

HAB. Ponsokai, Siam.

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V.—*A List of Butterflies taken in Kumaon.—By* William Doherty, *Cincinnati, U. S. A. Communicated by the* Natural History Secretary.

[Received April 22nd;—Read May 5th 1886.]

Last year I spent several months catching butterflies in Kumaon, a British district in the middle portion of the Himálayas, lying between the district of Garhwál and the independent kingdom of Nepál. The results of my visit are embodied in the following pages. In August, I made a rather successful excursion to the Pindari Glacier in the north-west of the district, and, from the latter part of September till early in December, I was engaged in a much longer expedition to the north-east. This time I was unfortunate; I found the low country too dry, and the high country too cold, and failed in both. Circumstances repeatedly delayed me, and when in the middle of October I finally succeeded in reaching Tagla Khar in Chinese Tibet, I found the ground frozen solid, and all the butterflies gone. So I would suggest to any entomologist resorting to these regions, that the three summer months are the only good ones for collecting, either on the desert plains of Tibet, or in the deep valleys of the Himálayas sheltered by the Outer Range from the violence of the monsoon rains.

A few remarks on the local distribution of butterflies may not be amiss. The great Desert Region of India does not approach the Himálayas, though a few stragglers of the genera *Callosune* and *Idmais* may be seen in the wide marshy meadows of the Tarai. The characteristic butterflies of this region (which covers all India proper except the Himálayas, Bengal, Malabar, and the forest-covered districts of the Eastern Gháts and the Central Provinces) are usually of African genera, and often of African species, *e. g.*, *Charaxes fabius*, *Yphthima nareda* and *Y. asterope*, *Apatura misippus*, *Junonia œnone* and *J. orithyia*, *Hypanis ilithyia*, *Tarucus theophrastus*, and *Pieris mesentina*. The next region is that of the Tarai, the Bhábar (or *dry* Tarai), the foot-hills, and the low valleys, reaching up to three thousand feet. Its fauna is more or less tropical,* and should rather be called Indian than Himálayan, the genera being for the most part spread over wide areas in the East. In Kumaon it is covered with forest containing a great variety of trees. The next region, which may be called the Lower Himálayan, extends from 3,000 to 7,000 feet, and is in Kumaon covered with a thin and open growth of the 'chir' pine *(Pinus longifolia)*. Above this lies what I may call the Upper Himálayan tract, extending from 7,000 to 10,000 feet, and clothed with a dense forest of oaks, firs, and rhododendrons. These two regions contain nearly all the typical Himálayan forms. To the first belong many species of *Lethe*, *Ilerda*, *Yphthima*, *Mycalesis*, *Libythea*, *Dodona*, *Abisara*, *Neptis*, *Athyma*, *Symbrenthia*, and a considerable variety of the *Theclinœ*. In the second such genera as *Zephyrus (Thecla)*, *Rhaphicera*, *Zophoessa*, and *Aulocera* abound. Above 10,000 feet one comes to a fauna chiefly Palæarctic. My collecting in this region was a failure, but it seems to me that there must be a difference between the butterflies of Dárma and Byáns—Alpine valleys covered with great pine-woods and rich meadows of heather and grasses—and those of the Chinese province of Ngári or Hundes, a lofty and desert country with but a few inches of rainfall (in June, July, and August), and hardly any vegetation, except on the banks of streams and at the edge of the snow, the melting of which affords moisture throughout the warmer months.

These zoological zones are by no means well-defined, and some species seem to set all laws of distribution at defiance. At Baghi north of Simla, I have observed a *Parnassius* and a *Catopsilia* alight on the same flower. In Kumaon, where I have seen palms and pines growing side by side, a troop of monkeys on a birch tree, and a flock of parrots on a fir, similar contradictions occur. An *Aulocera* is common in the Kali Valley down to 2,500 feet and even less; I saw a straggling specimen of *Colias fieldii* at the same place; and *Papilio machaon* is common at Bagheswar (3,000 feet) in the valley of the Sarju, and even at the crossing of the Rámganga near Gangolihát a thousand feet lower still. On the other hand, I caught *Terias hecabe* flying over Bireg Mountain at nearly 12,000 feet elevation. The largest range in elevation known to me is that of *Vanessa kaschmirensis*, which I found in the Kali and Sarju valleys at less than 2,500 feet, and again at the summit of the Lepu Lek Pass over 18,000 feet above the sea.

As I spent less than six months in Kumaon, I cannot be sure how many broods of butterflies occur there, or in what months they appear. So far as my four years' experience goes, there are four broods of Indian tropical and subtropical butterflies; two in the wet season—in May or June and in August or early September, and two in the dry season—in October or late in September and in the first warm weather of March—respectively. These periods vary in different localities, the amount of the rainfall being the chief cause of change. In Kumaon, the second wet-season brood, a numerous one, appeared from the middle to the end of August, and the first dry-season brood, less important, especially in the drier valleys, came out in the last week of September, my first specimen of *Mycalesis visala* having been taken September 22nd. In Travancore, there was a small brood of dry-season forms early in March, and a very large one in the second week of May. In Orissa and Ganjam, the first wet-season brood did not appear till the end of July (the monsoon coming late that year), and was poor in numbers. In the Chittagong Hill Tracts, the last dry-season brood, including a vast number of species and of specimens, appeared in the middle of March, while the first wet-season brood, both there and in Arakan, came out at the end of May, and was a very small one. At Bassein, Burma, the first dry-season brood, which, as I have said, appeared in Kumaon near the end of September, was delayed till the middle of November. All butterflies do not have four broods. A few seem to keep coming out at short intervals throughout the year, many are found only in the wet season, and some perhaps only in the dry. It is said that still others are found in but one month of the year, and so have only one brood instead of four. Nevertheless, I think I may generalize my experience into the brief statement that there are four broods, two of the wet, two of the dry season, each of them simultaneous with, or preceding by about a month, the beginning and the end of the season after which I have named them.

Between the two broods of dry-season butterflies (October and March), and between the two broods of wet-season butterflies (May—June and Aug.—Sept.), I have never observed any difference. But between specimens of the wet and dry-season broods there are in many genera very perceptible differences. There is a difference in size, the wet-season specimens being usually smaller, and there are minor differences in the angulation of the wings and in the tone and purity of the colouring below. But the most remarkable difference is in the presence of large eye-like spots on the underside of the wet-season forms, either absent or greatly reduced in those of the dry season. To give an example, the Sarju valley was on September 20th full of ragged specimens of a strongly ocellate butterfly (*Mycalesis mineus* proper), which a week later was succeeded by swarms of a larger, more angulate, non-ocellate insect (*Mycalesis visala)*, precisely similar in its structure, and especially in those very complex organs, the prehensores, which in general mark by strong differences the slightest specific variations. In the same way *Melanitis leda* was succeeded by the non-ocellate *M. ismene*, and *Junonia asterie* by the non-ocellate *J. almana*. Such facts are best studied in countries where the wet and dry seasons are very well marked, and there is none better than Travancore, where in 1882—3 I first observed these curious metamorphoses. Hitherto I have only found them to exist in *Junonia*, *Yphthima*, *Melanitis*, and in the following groups of *Mycalesis*:—*Calysisme*, *Orsotriæna*, *Telinga*, *Gareris*, *Virapa*, and *Samanta*. Many genera of the *Satyridæ* seem to produce only the two wet-season broods, and so fail to show what variations the weather would produce in their markings. Again, some dry countries produce only the dry forms, and some wet countries only the wet ones. For instance, I believe that Sindh produces only the dry-weather form, *Junonia almana*, while the wet climate of Ceylon and Singapore produces only *J. asterie*. In dry Orissa, the wet and dry forms of *Orsotriæna medus* and *O. runeka* are tolerably distinct, and *O. runeka* is the commoner of the two. But on the damp Malabar coast, of the representative forms *O. mandata* and *O. mandosa*, the latter, the dry-weather one, is scarce and imperfectly differentiated. The cause of this seasonal dimorphism would be a curious subject of study, but I have no suggestions to offer myself. Mr. de Nicéville has recently observed to me that perhaps, owing to the rank vegetation of the rainy season, the butterflies are better concealed, and have therefore been free to assume these handsome spots, under the influence, perhaps, of sexual selection. This view is I think somewhat strengthened by certain facts. The dry-season forms are all more or less leaflike in shape and colouring, while in the wet-season ones there is no such mimicry. This argues greater exposure to danger in the dry season. Remembering, however, the remarks of Darwin and Wallace on the protective nature of the ocelli of birds, borne out by the testimony of all sportsmen, and observed by me in the case of the common wild peacock, I am inclined to think that the ocelli are a direct protection to the insect during the rains. Certainly that is likely to be the case in the Himalayas, insectivorous birds being especially numerous there during the south-west monsoon, when the ocellate type of butterfly prevails.

For the last three years I have been studying the eggs of Indian butterflies, in the hope of thereby throwing new light on the grouping of these beautiful insects. In this hope I have not been disappointed. In most cases a genus is well and easily defined by its venation, but that venation only very imperfectly expresses the relationship in which it stands to other genera. To define families and subfamilies, one must, I think, study the 'ovation'. For example, the group called by Kirby the subfamily of the *Nymphalinæ* now presents a confused mass of many genera the relations of which *inter se* are extremely vague and uncertain. When the ovation is studied, these genera fall into convenient groups, defined by constant and peculiar forms of egg. I am aware that this classification is not likely to become a popular one: the student will always prefer to separate his genera by an artificial key based on the venation. But that these groups of mine are natural ones, and indicate in most cases the true line of descent, I do not doubt. All considerations of markings, shape, habits, geographical range, and sexual variation indicate the affinity of the genera here placed together.

Unfortunately my work is still very imperfect. The study of the eggs of butterflies is a difficult one. I may state as an example of this, that I examined the bodies of more than forty females of *Melanitis leda* before I obtained a single egg. I was for two years almost equally unfortunate with the much rarer females of *Charaxes*. My method was in all cases to obtain the egg by pressure from the abdomen of the female. Now the egg of some butterflies, including many of the *Satyridæ*, is marked with highly characteristic lines of tubercles appearing some time after it is laid. These I have hitherto been unable to study, and am unable to say whether they extend to the closely allied groups of the *Morphidæ* and *Elymniadæ*. On account of the deficiencies of my early notes, I am not able to place such common genera as *Curetis* and *Loxura*, though from my vague descriptions these genera seem to belong to the *Deudorix* group. Many of the rarer forms I have not yet obtained; the eggs of *Calinaga*, of *Neurosigma*, and of the true *Gerydus* are still unknown to me. Owing to these great imperfections, I have delayed, and shall delay for another year or two, the publication of my studies of the eggs of eastern butterflies. But I take the opportunity to give a short synopsis of the results hitherto obtained, as a kind of *prodromus* or precursor of the perfected work, defining each group as briefly as I can. I omit certain points not yet thoroughly tested, such as the distinction between the *Vanessa* and *Apatura* groups of the *Apaturidæ*. My division of the *Hesperiadæ* is a tentative one. The two last groups, though typically very distinct, show a tendency to coalesce, and I include them under the head of the single subfamily *Baorinæ*, for which name I would willingly substitute *Pamphilinæ*, but for my ignorance of the type of *Pamphila*.

I am not sure that the eggs form a good guide to a *primary* division of butterflies. Even if I were sure, I should hardly have the courage to alter the received classification to the required extent. I have consequently adopted Bates' division by the feet, substituting, for the sake of convenience, Constant Bar's simple and obvious names of *Tetrapoda*, *Heteropoda*, and *Hexapoda*. I do not think, however, that this grouping represents the real relations of the families of butterflies. Judged purely by the egg the classification of butterflies would be something like this :—

1. *Danaiform Group*, including the *Danaïdæ*, *Acræidæ*, and *Heliconiadæ*, connected with the *Apaturidæ* by *Cynthia* and *Cethosia*. (Egg radiate, much higher than wide, leathery).

2. *Satyriform Group*, including the *Satyridæ*, *Elymniadæ*, *Morphidæ*, and *Brassolidæ*, connected with the *Apaturidæ* by *Kallima*. (Egg usually smooth, globular, translucent, hard).

3. *Nymphaliform Group*, including the *Nymphalidæ*, connected with the *Apaturidæ* by *Charaxes*. (Egg reticulate, spiny, soft, with translucent ribs enclosing pentagonal or hexagonal spaces).

4. *Apaturiform Group*, including the *Apaturidæ* and *Eurytelidæ*. (Egg varies greatly, radiate, opaque, rarely much higher or lower than wide, hard).

5. *Lycæniform Group*, including only the *Lycænidæ*. (Egg reticulate, generally not spiny, hard, with opaque white ribs enclosing tetragons).

6. *Pieriform Group*, including the *Pieridæ* and *Libytheidæ*. (Egg radiate, ampulliform, twice as high as wide).

7. *Hesperiform Group*, including the *Papilionidæ*, the *Hesperiadæ*, and probably the *Erycinidæ*. (Egg smooth, prickly or radiate with minute flattened ribs, not so high as wide, opaque, dome-shaped).

The classification here adopted is as follows. I purposely omit all differences except those of ovation. By *radiate*, I mean having ribs diverging from a point at the apex; by *reticulate*, having a plexus of crossing lines bearing no relation to the apex or axis of the egg.

Both sexes with imperfect fore-feet	TETRAPODA.
Male only ,, ,, ,, ...	HETEROPODA.
Both sexes ,, perfect ,, ...	HEXAPODA.

TETRAPODA.

DANAIDÆ. Egg much higher than wide, leathery, radiate, with numerous broad flattened ribs and distinct cross-lines, reticulate over a small area at the apex. Two (*Danais*) or four (*Hestia*) anal tufts in the male.

ACRÆIDÆ. Egg similar, no anal tufts.

SATYRIDÆ. Egg about as high as wide, a little more or a little less, rather small, hard, typically translucent, and smooth or with obscure polygonal facets, sometimes subradiate, or even (*Aulocera*) with distinct, broadly-scalloped, anastomosing ribs, somewhat as in *Hesperia*. In some species it is covered with calcareous (?) accretions which do not appear till after some days' exposure to the atmosphere. Base of costal vein swollen, no præcostal cell. Cell of hindwing closed.

ELYMNIADÆ. Eggs similar, large, globular, translucent, hard, obscurely facetted, nearly as high as wide. Base of costal vein swollen, a præcostal cell in hindwing. Cell of hindwing closed.

MORPHIDÆ. Egg similar, globular, translucent, hard, not so high as wide, smooth (*Discophora*, *Thaumantis*), or obscurely facetted (*Clerome*). Base of costal vein generally not swollen, no præcostal cell. Cell of hindwing open.

APATURIDÆ. Eggs hard, small and numerous (except in the *Euripinæ*), opaque, never much wider than high, sometimes much higher than wide (in the *Cynthinæ*), radiate, with ribs generally slender and acute (except in the *Cynthinæ* and *Argynninæ*), and often serrate. Cross lines not very distinct. Type *Apatura* (*Hypolimnas*) *bolina*.

Subdivisions of the *Apaturidæ*.

KALLIMINÆ. Egg obsolescently radiate, as high as wide, somewhat *Morpho*-like.

CYNTHINÆ. Egg as in *Danais* but hard, much higher than wide. These two groups are aberrant, and should perhaps form separate families.

ARGYNNINÆ. Egg as high as wide or higher, ribs rather numerous, heavy, blunt, anastomosing, projecting at apex, with numerous distinct cross lines.

APATURINÆ. Egg not so high as wide, ribs few, sharp and prominent, usually projecting at apex, and often serrate.

EURIPINÆ. Eggs large, few, hardly as high as wide, ribs low, serrate, rather numerous, not produced at apex. The group seems somewhat transitional to the *Charaxidæ*.

EURYTELIDÆ. Eggs radiate, small, numerous, hard, nearly as high as wide, with radiating lines of erectile bristles. The *Eurytelidæ*, though I think them nearer to the *Apaturidæ* than to any other group, interrupt the sequence of the families.

CHARAXIDÆ. Eggs large, few, globular, hard, not so high as wide, with obscure ribs and cross-lines at the base only, forming (usually) tetragons, with minute projecting points at their intersection. *Charaxes* seems to connect the *Apaturidæ* with the *Nymphalidæ*.

NYMPHALIDÆ. Eggs very large, few, soft, not so high as wide, trongly reticulate with elevated, translucent, chitinous (?) lines crossing the surface asymmetrically, enclosing pentagonal and hexagonal spaces, and bearing long, acute, often bifid spines at their intersection. This group is a large and, so far as the eggs go, a very homogeneous one, but the caterpillars vary greatly. Type *Nymphalis* (*Limenitis*) *populi.*

HETEROPODA.

LYCÆNIDÆ. Eggs hard, small, numerous, much wider than high, reticulate, with a whitish, calcareous (?) accretion forming an asymmetrical network of tetragons.

Subdivisions of the *Lycænidæ*.

AMBLYPODINÆ. Egg at least half as high as wide, convex above, widest well above the base, with numerous delicate intersecting ridges bearing acute spines at their crossing.

DEUDORIGINÆ. Egg similar, with short, truncate spines. Clasps (*harpagones*) small, aborted, attached immoveably to the projecting intromittent organ.

THECLINÆ. Egg fully half as high as wide, convex above, widest close to the base, with coarse, minutely vesicular reticulations forming large irregular pits over the surface, and bearing broad, depressed tubercles at their intersection.

LYCÆNINÆ. Egg less than half as high as wide, concave above, "turban-shaped" (as Mr. Scudder calls it), widest above the middle, reticulations coarse and asymmetrical.

PORITINÆ. Egg hexahedral, otherwise similar. This is the only egg known to me that is not round in horizontal section. I hope to figure this extraordinary form in my forthcoming article on this subject.

GERYDINÆ. Egg less than one-third as high as wide, delicately and sometimes obsolescently reticulate, sometimes carinate, flat above and below.

ERYCINIDÆ. Egg not so high as wide, smooth, granulate or prickly, neither reticulate nor radiate in the few genera examined by me.

LIBYTHEIDÆ. Egg ampulliform, shaped like a soda-water bottle, twice as high as wide, forming a short neck or stalk close to the apex, radiate, with strong and anastomosing ribs. Palpi long, pupa suspended. Of the affinity of this remarkable genus with the *Pieridæ* I have no doubt. Westwood remarks on the similarity of their larvæ.

HEXAPODA.

PIERIDÆ. Egg as in the *Libytheidæ.* Palpi short, pupa girt.

PAPILIONIDÆ. Egg dome-shaped, smooth or obscurely facetted, not so high as wide, somewhat leathery, opaque. The egg of *Parnassius*, in my opinion, is that of a true papilionid, though Mr. Scudder compares it with those of the *Lycænidæ.*

HESPERIADÆ. Eggs very large, very few (except in the first group), only one or two matured at a time; opaque, dome-shaped, smooth; or with delicate, depressed serrate ribs, few or very numerous, and with distinct cross lines.

Subdivisions of the *Hesperiadæ.*

HESPERINÆ. Egg small, hard, seven-eighths as high as wide or even higher, constricted at base, with wide, scalloped, anastomosing ribs. This group is very distinct. The only Indian genera belonging to it are *Hesperia (Pyrgus)* and *Gomalia.*

SUASTINÆ. Egg lower, dome-shaped, large, hard, constricted at base, with a few broad depressed, delicate, biserrate ribs. This group does not seem to be represented in Europe or North America.

BAORINÆ. Cyclopides-Group. Egg similar, two-thirds as high as wide, constricted at base, with very numerous slender ribs.

BAORINÆ. Baoris-Group. Egg half as high as wide, leathery, limpet-shaped, widest, and often carinate at base, smooth, generally overlaid with pigment above, as in many *Papilios,* sometimes with numerous obsolete ribs. This group seems to be equivalent to the *Astyci* as defined by Scudder.

In the following list I have given the exact localities of all the rarer butterflies that I caught in Kumaon, and I have endeavoured briefly to indicate the range of most of the species in height. The figures given are however very uncertain, representing but a limited experience. In most cases I have given a rough estimate of the height of the highest and lowest points at which I have taken the species, making allowance, in a few very common kinds, for "straggling." The fauna of the district changes considerably as one goes from west to east. On the west, the Pindari Valley forms a part of the Garhwál river-system, and its butterflies are distinctly those of the North West Himálayas. The successive river-valleys to the eastward thence partake more and more of the nature of the Eastern Himálayas. Some Sikkim forms seem to extend westward to the Sarju or the Rámganga and no farther. And a very large number seem bounded by the Káli, the river separating Kumaon from Nepál. The valley of this river forms a genuine zoological boundary. Among the species that seem to extend no farther west, are *Papilio paris, Melanitis zitenius, Elymnias leucocyma, Symbrenthia hypselis, Neptis vikasi, Euthalia apiades* and *E. lubentina,* and such genera and subgenera as *Dyctis, Rohana, Dichorrhagia, Moduza, Haridra, Zemeros, Chersonesia, Chliaria, Remelana, and Cheritra.* Three larger groups, the family of the *Morphidæ* and two aberrant divisions of the *Lycænidæ* (the *Gerydinæ* and the *Poritinæ*), seem to extend no farther west than the Káli and its branch the Sarju.

A few remarks may be permitted on the curious habits of the larvæ of certain *Lycænidæ*. Dr. Thwaites (in Moore's "Lepidoptera of Ceylon") has the following remarks on the subject. "Nature, however, finds a protection for these said helpless individuals" [larvæ of *Lycænidæ* unspecified] "in the instincts of a species of ant (*Formica smaragdina*, Fabr.), which finding a substance most palatable to it secreted naturally from a glandular defined spot upon the bodies of these helpless larvæ, takes possession of them as 'cows,' surrounding each separate one, and the leaf on which it feeds, with a few silken strands of its web, protecting them jealously and attacking most fiercely any living thing intruding upon them." Besides a remark of Herrich Schäffer's, quoted in Distant's "Rhopalocera Malayana," that *Gerydus symethus* inhabits ants' nests, I have met with no other mention of this singular habit. I have myself observed it in quite a number of Indian *Lycænidæ*, belonging to several distinct groups, and feeding on the leaves of various trees and herbs. My observations are still in progress, and I reserve for a future occasion a fuller account of them, and descriptions of the larvæ on which they have been made. The larvæ in question are all very helpless and inactive grubs, sluglike in shape, tapering at both ends, pubescent, green or brown, with a very small retractile head. On each side of the penultimate segment above, there is a short protuberance, from which can, in most cases (*e. g.*, *Tarucus theophrastus*), be extended a brush of hairs (apparently absent in some species, *e. g.*, *Azanus ubaldus*). This is, I have no doubt, a scent-gland, and may be intended to attract the notice of the purblind ants. On the dorsal line of the preceding segment, the eleventh, there is another short tubercle exuding a viscid juice. It exists in all the *Lycænidæ* known to me, whether they are maintained by ants or not, and from it issues a gummy thread by the aid of which I believe the caterpillars sometimes swing themselves from branch to branch, or attach themselves to leaves. But though in all probability acquired for such purposes, it is peculiarly attractive to the ants, which at all hours surround the poor caterpillar and, by stroking and tickling it with their antennæ, induce it to yield up this sweet (?) liquid. I have not yet found any caterpillar in the possession of web-making or arboreal ants such as *Formica smaragdina*, and no restraint such as Dr. Thwaites mentions was placed upon any larva observed by me. But the ants would always remain near the caterpillar, and would always fly fiercely to the rescue if anything molested it. When it had attained its full growth, the ants, forming a circle round it, would forcibly drive it down to their nest at the foot of the tree. This sight is rather an amusing one, the caterpillar often showing the greatest reluctance to leave its pasture-ground, and manifesting strong doubts as to the intentions of its escort. I was struck with the forbearance and patience of the ants, which carefully abstained from any violent use of their formidable jaws, though the journey was thereby sometimes prolonged to six or seven hours. Having arrived at the foot of the tree, the ants deposited the caterpillar in an open space just within the mouth of the nest, whereupon the latter immediately attached itself to the bark, and commenced its transformations. I have counted as many as thirteen chrysalids of *Azanus ubaldus* so attached in one nest at the foot of a kind of bábul tree (*Acacia leucoplœa*). All were uninjured and all produced perfect butterflies. The instinct which induces the ants to preserve these caterpillars in their nests, thus sacrificing a large present supply of food to the possibility of a future supply of the sweet juice they are so fond of, strikes me as one of the most remarkable things in nature.

A kind of hermaphroditism seems to occur sometimes in the *Hesperiadæ*. From the body of (apparent) males of *Suastus eltola* and of *Coladenia dan*, both having perfect prehensores of the form characteristic of their respective species, I obtained one or two well-developed eggs exactly similar to those taken from the females of the same species. Also, from a male of *Suastus toona* (the egg of that species being, except for this, unknown to me) I obtained a single immature blood-red egg. I have not observed this in any of the higher groups of butterflies.

My thanks are due to the Superintendent of the Indian Museum, Calcutta, who has given me the freest access to the fine collections under his charge; and to Mr. de Nicéville, who has given me the benefit of his advice and assistance on several difficult points.

Suborder RHOPALOCERA TETRAPODA, Constant Bar.

Family DANAÏDÆ, Felder.

1. Danais aglaïa, Cram. (*aglea*) = *melanoïdes*, Moore. Common in the Taraí and in the Sarju and Káli valleys up to 4,000 feet.

2. Danais limniace, Cram. Ránibágh at the foot of the hills.

3. Danais septentrionis, Butler. Sarju and Káli valleys, 2—4,000 feet.

4. Danais tytia, Gray. Pindari, Gori, Sarju, and Káli valleys, 3—6,000 feet. Mimicked by *Hestina nama*.

5. Danais chrysippus, Linn. Ránibágh, Káli valley to Dhárchula (3,000 feet), not common.

6. DANAIS GENUTIA, Cram. Common everywhere, up to Kháti, 7,000 feet.

7. EUPLŒA MIDAMUS, Linn. = *linnæi*, Moore. Káli valley to Dhárchula, Gori, and Sarju valleys, 2—4,000 feet, common.

8. EUPLŒA CORE, Cram. Common as high up as Kháti, 7,000 feet.

Family ACRÆIDÆ, Doubleday.

9. PAREBA VESTA, Fabr. Common locally, 4—5,000 feet. Taken on the Dhoaj, 6,500 feet.

Family SATYRIDÆ, Swainson.

10. MYCALESIS (GARERIS) SANATANA, Moore. The non-ocellate dry-season form, Askot, 5,000 feet, October. The ocellate, wet-season form (*gopa*, Felder), Rámgarh and Tákula, Western Kumaon, 5,500—6,000 feet, August, rare.

11. MYCALESIS (CALYSISME) PERSEUS, Fabr. The dry-season form, first seen on the Lower Gori, 2,500 feet, September 29th; also in the Káli valley and the Bhábar, 1—3,000 feet. The wet-season form (*blasius*, Fabr.) common in the same localities, Aug.—Sept.

12. MYCALESIS (CALYSISME) MINEUS, Linn. Wet-season form, commoner than the preceding species in all the valleys up to 5,000 feet, Aug.—Sept. The dry-season form (*visala*, Moore) first seen on the Lower Sarju, about September 23rd. Caterpillar taken by me at 10 P. M. in a meadow at Sonakala, Southern Orissa. It is fusiform, brownish-green, tapering greatly at both ends. Head rather large, finely pubescent, dark fuscous marbled with paler, a smooth plate in the middle of the forehead, two short, rough triangular horns. Neck greatly constricted. Body rough and prickly rather than pubescent, finely wrinkled transversely, six wrinkles to each segment, the second twice as broad as the others. A faint darker dorsal line chiefly visible posteriorly, a lateral line of oblique dark streaks, one to each segment. Last segment prolonged and ending in two rough, triangular, slightly divergent horns. It has the habit of resting for hours with its chin strongly retracted, and its horns projecting forwards. The fourth eye from above is very much larger than the others, and the head with its short, ear-like horns looks very much like a cat's. The larva of *Melanitis* has on the contrary the horns long and slender, and the eyes subequal. Before undergoing its metamorphosis, the larva of *mineus* became in colour a clear transparent green (like the normal colour of that of *Melanitis*), unmarked except by the black dots of the spiracles.

Chrysalis green, smooth, its envelope transparent, shorter and thicker than the chrysalis of *Melanitis*, strongly constricted between the thorax and abdomen. The period varied in my specimens from five days and six hours to six days and eight hours.

The caterpillar feeds on various grasses. That of *Melanitis* I always captured on young growing rice. Both are strictly nocturnal.

13. MYCALESIS (SAMANTA) MALSARA, Moore. Wet-season form, Káli, Gori, and Sarju valleys, 2—4,000 feet, Aug.—Sept. Dry-season form (*lepcha*, Moore) Lower Káli valley, 3,000 feet, November, rare. My specimens, both ocellate and non-ocellate, all have the white band below very narrow, whereas the usual form of the species in Sikkim has it wide. The dry-season form of this latter variety is *rudis*, Moore, which I have taken abundantly in the Chittagong Hill Tracts.

14. MYCALESIS (SAMANTA) HERI, Moore. My two specimens from Kápkot and Baghrihát, 2—5,000 feet, differ from a Sikkim specimen in the Indian Museum, Calcutta, in having the band below almost obsolete. One has only two ocelli on the forewing below, the other has two additional smaller ones between them. Both have only two ocelli on the hindwing above. I have also the dry-season form (one male, Jhulaghát, 2,000 feet), lacking the ocelli below, but otherwise similar, especially in the prehensores. Those who do not accept the doctrine of the seasonal variation of the *Satyridæ* will consider this a new species. In the same way *nicotia*, Hewitson, is represented in the dry season by *langii*, de Nicéville.

15. LETHE EUROPA, Fabr. Ránibágh at the foot of the hills, 1,000 feet.

16. LETHE DYRTA, Felder. Lower Himálayan tract, 3—6,000 feet.

17. LETHE HYRANIA, Koll. Kumaon generally, 3—7,000 feet. My specimens are somewhat transitional to *dinarbas*, being quite as dark, and tinged with lilac in certain lights. These two probably form one species.

18. LETHE MAITRYA, de Nicéville. Dhánkuri, Khati in Western, Sosa in Eastern, Kumaon, 7,000—11,000 feet. (Upper Himalayan tract.)

19. LETHE SIDONIS, Hew. Naini Tál, 6—7,000 feet, small specimens, a large dark variety at Kháti, N. W. Kumaon, 7—8,000 feet.

20. LETHE VAIVARTA, n. sp., allied to *nicetas* and *sidonis*. Dhankuri, Kháti, Dwáli, N. W. Kumaon; near Khela, East Kumaon, 7—11,000 feet.

Shape of wings very much as in *sidonis*, except that the angle at the upper median branch of the hindwing is obsolescent, those at the ends of the lower median branches being more produced. Wings wider and costa more bent than in *nicetas* and *maitrya*. Lustrous brown, cilia alternately dark and pale. Two dull ochreous spots on costa of forewing at $\frac{1}{5}$ and $\frac{2}{5}$ from apex respectively, more distinct in the female. Faint traces of a pale transverse band in continuation of the inner spot. *Hindwing* with five distinct black spots, the last smallest, extending from the first subcostal to the lower median, encircled in the female by pale bronzy rings. *Below, forewing* basally fuscous brown, becoming paler and more reddish apically, an irregular dark line obliquely from middle of costa to the submedian vein near the lower angle of the wing, separating the dark base from the pale outer portion. Along its outer edge a strong ochre band extends from the costa to the upper radial, thence faintly marked as a pale band, angulate, but not broken as in *nicetas.* A subapical pale band from the costa, where it is ochreous, to the upper median, containing four dark spots pupilled with whitish dots. Cell with a pale band across it a little beyond the middle. *Hindwing* with four broken irregular lilac lines across base and disc besides two short ones defining the discocellular veins. The outer line is bordered by a very angular dark brown band, widest from costa to upper median, where it is acutely angled; a faint trace of ochreous beyond its upper portion. Cell crossed by three lilac lines besides those at the end. Ocelli seven, all set in lilac rings, and forming a curved line much as in *sidonis;* the anal two small and set in the same lilac ring, the 2nd, 3rd, and in a less degree the 4th strongly blurred, their lilac rings being also somewhat diffused, especially in the female. The other ocelli are distinct, pupilled with white. A continuous marginal line of dull reddish ochreous, bounded by a slender black line within and without; along its inner edge a wavy band of bright lilac narrowed at the veins and extending from the upper median to the submedian vein.

This species is more variegated in colour than *sidonis,* and less than *nicetas;* the 2nd, 3rd, and 6th ocelli are always blurred, and the 1st, 5th, 6th, and 7th perfect, thereby differing from *maitrya* (in which they are all blurred), from *nicetas* (in which they are all perfect), and from *sidonis,* in which the 2rd and 4th are slightly blurred. From *sidonis,* its nearest ally, it also differs in the ochreous marks on the forewing above and below, and in the distinct black spots of the hindwing above. Prehensores close to those of *sidonis.* The uncus, however, is more bent down, appearing truncate from above and flattened laterally, while in *sidonis* it appears acute from above and is cylindrical. In both species the uncial branches viewed from the side are distant from the uncus, and much shorter, and come to meet it at an angle, while in *maitrya* the uncus and its branches are nearly equal, nearly parallel, and approximate. The clasp also, is simply hooked instead of being set with numerous barbs as in *sidonis* and *vaivarta.*

21. LETHE (TANSIMA) VERMA, Koll. Lower Himálayan tract, 2,500—6,000 feet, not very common.

22. LETHE (TANSIMA) ROHRIA, Fabr. Lower Himálayan tract, 2,500—7,500 feet, common. The subcostal veins of these two species are differently arranged, but they agree in the very broad cell of the forewing, in the white apical stripe common to both sexes, in the first ocellus of the hindwing below being withdrawn from the series, and, as regards the prehensores, in the curiously palmate branches of the uncus.

23. LETHE (ZOPHOESSA) JALAURIDA, de Nicéville. Dhánkuri, Kháti, Dwáli, North-West Kumaon, 7—11,000 feet. The female only differs from the male in its larger size, broader wings, and somewhat paler markings.

24. LETHE (ZOPHOESSA) GOALPARA, Moore. Dhánkuri, Kháti, 7—9,000 feet.

Subgenus CHARMA, nov. Forewing, outer margin straight or slightly convex, cell rather short and broad, upper radial from the end, 2nd and 3rd subcostals from just before the end, of the cell, approximate, discocellulars slightly convex. *Hindwing* narrow, almost equally angled at the first and third median branches. The apical angle obsolescent, that at the 1st subcostal more distinct, the lower discocellular joining the median just before its last bifurcation. A glandular patch of peculiar black scales on the hindwing of the male in the space between the costal and subcostal veins, extending into the cell and just within the fork of the 1st and 2nd subcostals. By this patch, and by the displacement of the first ocellus of the hindwing behind the line of the others, this group may be distinguished from other *Lethe*. What I regard as of more importance is the extraordinary structure of the prehensores; the uncus (which is provided with rather short and slender branches) being cleft into two strong lobes lying in the same vertical longitudinal plane, and resembling the open claw of a lobster, the lower point being slightly the longer, a structure unknown among all other tetrapod butterflies. Type *baladeva*. The genus probably includes *andersonii*, Atkinson, and perhaps other species.

25. LETHE (CHARMA) BALADEVA, Moore. Pindari Valley, 7—8,000 feet, darker than Sikkim specimens, the silver bands narrower.

26. LETHE (NEOPE) PULAHA, Moore. Kháti, Kápkot, 7—8,000 feet, rare.

27. RHAPHICERA MOOREI, Butler. Dhánkuri, Kháti, Dwáli, Chaudáns, 7—11,000 feet. The female only differs in its larger size, slightly paler colouring, and broader wings.

28. AMECERA SCHAKRA, Koll. Kumaon generally up to 9,000 feet, seen as low as Dhárchula, 3,500 feet.

29. AULOCERA PADMA, Koll. The female described by Kollar is evidently of the same species as Moore's male type of *avatara.* Kollar's description and plate are unmistakeable. There are, however, two allied species now passing under the name of *padma.* Of the true *padma* I have both sexes from Nárkanda near Simla and from the Galis north of Mari, but in Kumaon I obtained only females, taken in October and November in the Kali Valley, ranging from 7,000 feet at Juti in Chandans to 2,500 feet at Garjiaghát and even lower. This species is much the larger of the two; my females are all over four inches spread. The cell of the forewing is covered with long shining hair; the male mark on the forewing is more distinct, the male lacks the white spots diverging to the costa from the macular band; in the female these are three in number, and rather blurred. The female has the surface below heavily striated with whitish; the band is not at all definite outwardly and is nearly white in colour.

30. AULOCERA LOHA, n. sp., is the other form of *padma.* Smaller, cell of male smooth, sex-mark not very plain, male distinguished by the divergent white spots from the median band to the costa, the female by the band of the hindwing below being narrow, well-defined, and ochreous. This insect is darker than the other, the apex of both wings glossed with lilac below, and the base of the hindwing greenish. It may perhaps be only a seasonal form of the preceding species. I am unluckily unable to compare the prehensores, having no drawing of those of *padma.* I found *loha* common on Bireg mountain, North-West Kumaon, in August and September, 9—12,000 feet, the species thus occurring at the same elevation as *brahminus,* the prehensores of which are altogether different. The *padma* from Sikkim mentioned (P. Z. S. 1882) by Mr. Elwes are of this species.

31. AULOCERA SWAHA, Koll. Found on all the hills of the Pindari district 7—10,000 feet, also on the outer ranges, Jágheswar, Tákula and the Dhoaj, 5,500—9,000 feet, and in Chaudáns in East Kumaon, 5—7,000 feet. A common species. I did not obtain the form which has the band of the forewing bright yellow.

32. AULOCERA BRAHMINUS, Blanch. Pindari District, 10—12,000 feet, not very common.

33. AULOCERA SCYLLA, Butler. Pindari Glacier, and Mount Byeri above Furkya, North-West Kumaon, 12—14,000 feet, Garbyán, 12,000 feet, Lepu Lek, 16,000 feet, North-East Kumaon. The prehensores are distinct from those of *brahminus.* The latter has the uncus, seen from above, longer and its branches more slender. Seen from the side, *scylla* has the uncus and its branches parallel and nearly in the same horizontal plane, and the top of the uncus is knobbed, while in *brahminus* it is

smooth and the branches diverge downwards from it. The clasp has its upper limb toothed horizontally, in *scylla* vertically. Colonel Lang's type of *werang* seems to me only a small *brahminus* from high elevations. Mr. Butler's *scylla* I have not seen. The present species is small, ochreous-gray below, with a discal line of white spots on the hindwing below, the band there crooked; on the forewing below, the ocellus is pupilled with white and the band is wide and united. I have caught it flying with *brahminus*, from which I consider it distinct, in the meadows near Furkya.

34. AULOCERA SARASWATI, Koll. Pyura, above Loharkhet, the Dhoaj, Takula, 5—9,000 feet. It is the most distinct of the *Aulocera*. The egg has 23 ribs, that of all the other *Aulocera* having 26—28.

35. ŒNEIS PUMILUS, Feld. A single female found on the moist ground at the edge of the snow-line on the northern side of the Lepu Pass, Chinese Tibet, 17,000 feet.

36. CALLEREBIA SCANDA, Koll. Above Loharkhet, Kháti, Dhankuri, N. W. Kumaon, 7—11,000 feet.

37. CALLEREBIA HYBRIDA, Butler. Kumaon generally, 6—9,000 feet. Probably the wet-season brood of *annada*.

38. CALLEREBIA NIRMALA, Moore. Two males, above Loharkhet, 7—8,000 feet.

39. CALLEREBIA ANNADA, Moore. Kumaon generally, 5—7,000 feet. First specimens taken Sept. 22nd. The above forms are easily separated, but the differences can hardly be called specific. Except in *scanda* the prehensores are very similar in all. The next species is very distinct.

40. CALLEREBIA HYAGRIVA, Moore (*Yphthima hyagriva*). The venation of the forewing shows this species to be a true *Callerebia*, both the 1st and the 2nd subcostals being emitted before the end of the cell. The structure of the prehensores shows the same thing. All the *Satyridæ* known to me, except *Yphthima* and *Melanitis*, have the uncus branched, and in *hyagriva* this part is branched precisely as in other *Callerebia*. The prehensores are scarcely to be distinguished from those of *annada*. I found *hyagriva* not uncommon at various points in Kumaon, 3—7,000 feet, during the rains.

41. YPHTHIMA (more properly IPHTHIMA) NAREDA, Koll. Kumaon generally up to 9,000 feet, common. This species is somewhat transitional to *Callerebia*. The uncus is not exactly lobed, but flattened out horizontally like a tile, appearing from above very broad and square-cut.

42. YPHTHIMA SAKRA, Moore (= *nikæa*, Moore). Kumaon generally, 3,000—11,000 feet, common in the higher regions, varies greatly.

43. YPHTHIMA ASTEROPE, Klug. (= *ariaspa*, Moore), Bágheswar, Tákula, Lower Sarju, Lower Gori, 2,000—6,000 feet.

44. YPHTHIMA HUEBNERI, Kirby. Bágheswar, Rámbagh, Kápkot, 1,000—4,000 feet.

45. YPHTHIMA SINGALA, Felder. Bágheswar, Kápkot, Tákula, Lower Sarju, 2,000—6,000 feet. Fresh specimens have faint traces of a male mark on the forewing above, as in *philomela*. The forewing above is always ocellate in the female, non-ocellate in the male. I found an allied species, ocellate in both sexes, common at the extreme summit (5,000 feet) of Mahendragiri, Ganjam district, Eastern Gháts, and perhaps identical with *thora*. The form I call *singala* is common in many parts of India; I am not sure of its identity with the Ceylonese species.

46. YPHTHIMA AVANTA, Moore. River-valleys generally, 2,500—5,000 feet. The sex-mark is more prominent than in *singala*. Ocellus on forewing above sometimes obsolete in the male.

47. YPHTHIMA PHILOMELA, Joh. Valleys up to 6,000 feet. The sex-mark is very prominent. These seven species are all very distinct, and all have the prehensores differently formed. The dry-season forms are all more or less non-ocellate. That of *sakra* is still unknown to me. The seasonal forms are not so well separated in *Yphthima* as in *Mycalesis*.

48. MELANITIS LEDA, Linn. Wet-season form, Tarai and low valleys up to 4,000 feet, August—September. Dry-season form (*ismene*, Cram.), same localities, October—November. This species is hardly distinct from the next two. The prehensores, which in this family and in the *Lycænidæ* are almost infallible tests of species, here show no good distinctions.

49. MELANITIS ZITENIUS, Herbst. Káli valley, 2—4,000 feet.

50. MELANITIS BELA, Moore. Wet-season form, Baghrihát, Káli Valley, 2,500 feet, rare. Dry-season form (*aswa*, Moore), Toli, Káli Valley, 2,500 feet, rare. I consider *tristis*, Felder, *suyudana*, Moore, and *abdullæ*, Distant, all synonyms of this species.

Family ELYMNIADÆ.

51. ELYMNIAS UNDULARIS, Dru. Ránibagh at the foot of the outer hills, 1,000 feet.

52. ELYMNIAS LEUCOCYMA, Godt. Káli valley at Balwakot and Toli, 2,500—3,000 feet. Compared with Sikkim specimens they are more striated and speckled with white below, and as in *patna* they all have an irregular line of whitish spots round the outer disc of the hindwing above.

53. DYCTIS PATNA, Westw. Two males, Garjiaghát, near the junction of the Káli and the Gori, Eastern Kumaon, 2,500 feet. They do not differ from Sikkim specimens.

Family MORPHIDÆ, Westwood.

I did not capture any morphid in Kumaon, but in the great gorge of the Sarju below Kápkot, I observed several specimens of a magnificent new species, probably an *Amathusia* or a *Zeuxidia* (I think I noticed the acuteness of its wings), and an excellent mimic of *Euplœa midamus*, which was common there. They had the true morphid flight, and always settled on the underside of leaves with folded wings. I spent half the day in trying to catch them, but was unsuccessful, owing to the dangerous and precipitous nature of the place.

Family APATURIDÆ, Boisduval.

Subfamily KALLIMINÆ.

54. KALLIMA INACHUS, Boisd. (*inachis*). River valleys, 2—5,000 feet.

Subfamily ARGYNNINÆ.

55. CUPHA ERYMANTHIS, Drury. River valleys up to 5,000 feet.

56. ATELLA PHALANTA, Drury. Tarai and hills to 6,000 feet.

57. ATELLA SINHA, Koll. Káli valley, 2—3,000 feet, common.

58. ARGYNNIS ISSÆA, Gray. The dark basal area on the hindwing above is broad and undefined; the submarginal dark band of the hindwing below is distinctly broken by an ochreous space between the radial and the upper median. In these respects it differs from *latonia*, Linn. (*lathonia*). The prehensores also seem tolerably distinct. The species is common all over Kumaon from Bágheswar (3,500 feet) in the Sarju valley to the Lepu Lek, 16,000 feet. At very high altitudes the specimens are small.

59. ARGYNNIS CHILDRENI, Gray. Naini Tal, Khâti, 6,000—8,500 feet.

60. ARGYNNIS KAMALA, Moore. Dhánkuri, 10,000 feet.

61. ARGYNNIS JAINADEVA, Moore. Pindari Valley, 9,000 feet, rare.

62. ARGYNNIS NIPHE, Linn. Lower Himalayan region from the Káli valley, 2,500 feet, to Almora and above Pithoragarh, 6,000 feet.

Subfamily APATURINÆ.

Vanessa-Group.

63. VANESSA KASCHMIRENSIS, Koll. From the Káli valley (2,500 feet) to the summit of the Lepu Lek, over 18,000 feet, far above the snow line. I also found it abundantly in Nepalese Tibet and in the dry valleys of Hundes (Chinese Tibet). The prehensores as drawn by me are different from those of *urticæ* figured by Dr. Buchanan White.

64. VANESSA LADAKENSIS, Moore. Near Kálápáni, Nepalese Tibet, 14,000 feet; another near Hindi, Chinese Tibet, 15,000 feet. The prehensores are quite different from those of *kaschmirensis.*

65. VANESSA CANACE, Linn. (*charonia*, Drury). Kumaon generally, 2,500—8,000 feet, rather scarce.

66. GRAPTA C-ALBUM, Linn. Kháti, N. W. Kumaon, 8,000 feet. Resembles my Mari specimens very closely.

67. GRAPTA AGNICULA, Moore. Pindari Glacier, 12,000 feet, Byáns valley, Eastern Kumaon, 12—15,000 feet. These species are closely allied, but I have been able to separate my own specimens by means of slight differences in the prehensores as well as by the shape and colouring. But I do not find the prehensores absolutely constant in the first three genera of this group.

68. PYRAMEIS INDICA, Herbst. Kumaon generally, 2,500—10,000 feet.

69. PYRAMEIS CARDUI, Linn. Ranging from Dhárchula (3,000 feet) to 16,000 feet on the Lepu Lek.

70. CYRESTIS THYODAMAS, Boisd. Kumaon generally, 2,000—8,000 feet, called the "map butterfly" by European collectors. The occasional yellowish specimens are perhaps cases of atavism, indicating descent from a red *Cyrestis.*

71. CHERSONESIA RISA, Doub. Káli valley, 2—3,000 feet. Kumaon specimens are lighter in colour and more delicately marked than Sikkim ones. Three of the bands below are in both sexes beautifully glossed with lilac on the hindwings and to a less extent on the forewings.

72. SYMBRENTHIA HIPPOCLUS, Cram. Low country and river-valleys, as far up as the Dhoaj, 6,500 feet, common. I have also found it in the Eastern Gháts of the Indian Peninsula, in the districts of Ganjam and Vizagapatam.

73. SYMBRENTHIA HYPSELIS, Godt. Káli valley, Eastern Kumaon, 2—4,000 feet, common.

74. SYMBRENTHIA ASTHALA, Moore. Pindari valley, N. W. Kumaon, 7,000 feet. The undescribed *female* differs from the male in the red markings above being paler, the apical band wider and longer, extending from the extreme costa almost to the outer margin, approaching the discoid band, remote from the lower band, having a deep sinus on its lower side and a streak given out upwardly from its outer end. Lower band of forewing broad, its upper part clavate, displaced outwardly above the lower median, discoid band irregular, heavy, its end produced below the middle median branch. Lower band of hindwing extends only to the second subcostal, with only a trace of a submarginal line beyond it. *Below*, nearly uniform orange-tawny, the base

of both wings and costa of forewing paler ochreous. The prehensores of these species are interesting. In *hypselis* the clasp seen from the side is curiously bent upwards in the form of the figure 2. In *asthala* the shape is still more bizarre, the tip bending down so as almost to form a complete circle. The base of the clasp is also more square, and the uncus more slender.

75. Symbrenthia hysudra, Moore. Pindari valley, N. W. Kumaon, 5—8,000 feet. The female is much like the male, but all the red markings are larger and more confluent. The prehensores are very different from those of the preceding species, the uncus having strong branches nearly as long as itself, and the clasp, seen from the side, being square-cut, with a short horizontal projection from its upper angle.

Junonia-Group.

76. Junonia orithyia, Linn. Kumaon generally, plains to 6,000 feet.

77. Junonia lemonias, Linn. Kumaon, plains to 6,000 ft.

78. Junonia œnone, Linn. Kumaon generally, taken up to 7,000 ft.

79. Junonia atlites, Joh. (*laomedia*). Ránibágh and the Tarai, 1,000—2,000 feet, scarce.

80. Junonia almana, Linn. The dry-season form. I have no doubt that it is conspecific with *asterie*, Linn., the wet-season form. Both are found in the Sarju and Káli valleys, 2,000—4,000 feet, and in the Tarai. The prehensores are the same in both.

81. Precis iphita, Cram. Everywhere common, as high up as Kháti, 8,000 feet. The wet-season brood consists of very pale specimens; the autumn brood, appearing at the end of September, is much darker.

82. Pseudergolis veda, Koll. (*wedah*). Sarju, Káli, and Gori valleys, 2,000—5,500 feet.

83. Rohana parysatis, Westw. (*parisatis*). One male, seen at Jhulaghát, eastern border of Kumaon. The genus is allied to *Precis*.

Apatura-Group.

84. Apatura (or Hypolimnas) bolina, Linn. Tarai, 1,000 feet. Specimens from the forests of the Káli valley (2,000—4,000 feet) approach *jacintha*, Drury.

85. Apatura (or Hypolimnas) misippus, Linn. Almora, 6,000 feet, Lower Gori, 2,500 feet.

86. Stibochiona nicæa, Gray, (*nicea*). Sarju, Gori, and Káli valleys, 2—5,000 feet.

87. Dichorrhagia nesimachus, Boisd. One female in bad condition, Káli valley, near Jhulaghát, Nepál. I am not certain as to the position of this genus, never having examined the egg.

Subfamily Euripinæ.

88. Sephisa dichroa, Koll. Loharkhet, N. W. Kumaon, Askot, E. Kumaon. Much darker than Kulu or Simla specimens. The black discal band across the hindwing below is especially wide, so as wholly to enclose the whitish spot between the lower medians. The veins are also heavily marked with black. At Mari, in the extreme north-west of India, I found this species with the band on the hindwings below wholly obsolete, and the underside with a whitish, silky gloss.

89. Hestina nama, Doub. Káli, Sarju, and Gori valleys, from 2,000 almost to 6,000 feet. The outer part of the hindwing above is somewhat darker than in Sikkim specimens, and the ground-colour more distinctly greenish.

90. Euripus consimilis, Westw. Jhulaghát, East Kumaon, two females only.

Family EURYTELIDÆ, Westwood.

91. Ergolis merione, Cram. Gori and Káli valleys, 2—4,000 ft.

92. Ergolis ariadne, Linn. Ránibágh and the Tarai, 1,000 feet.

Family CHARAXIDÆ.

93. Charaxes fabius, Fabr. Ránibágh at the foot of the hills.

94. Charaxes (Eulepis) athamas, Drury. Sarju, Káli, and Gori valleys, 2—4,000 feet.

95. Charaxes (Eulepis) eudamippus, Doub. *Seen*, Jhulaghát on the Káli, no doubt as to the species.

96. Charaxes (Haridra) lunawara, Butler. Lower Káli, rare.

97. Charaxes (Haridra) hemana, Butler. Kapkot on the Sarju, perhaps the western limit of the group. Also, Gori and Káli valleys. My specimens seem to correspond well enough with Mr. Butler's figure and description, but the markings are not very constant.

Family NYMPHALIDÆ, Swainson.

98. Symphædra nais, Forst. Haldwáni in the Tarai, 1,000 feet.

99. Euthalia doubledaii, Gray. Naini Tál, Ránibágh, etc., 2,000—7,000 feet. Found chiefly in the rains.

100. Euthalia apiades, Mén., (*appiades*). Lower Gori, Jhulaghát on the Káli, 2—3,000 feet, scarce.

101. Euthalia garuda, Moore. Káli valley, 2—3,000 feet, scarce.

102. Euthalia lubentina, Cram. Káli valley at Baghrihát, 2,500 feet, scarce.

103. Nymphalis (or Limenitis) danava, Moore. Gori valley at Garjiaghát, rare.

104. Moduza procris, Cram. Káli valley, 2—4,000 feet, scarce.

105. Potamis (or Apatura) namouna, Doub. Loharkhet, and Kápkot on the upper Sarju, 4—5,000 feet, scarce.

106. Athyma perius, Linn. (*leucothoë*). Kumaon generally, 1,000—6,000 feet. Unlike the other species of *Athyma* it prefers open meadows to forests.

107. Athyma selenophora, Koll. Kali and Gori valleys, 2—3,000 feet.

108. Athyma cama, Moore. Almora; Eastern Kumaon generally, 2—5,000 feet, common.

109. Athyma zeroca, Moore. Gori and Káli valleys, 2—3,000 feet, varies considerably in markings.

110. Athyma opalina, Koll. Upper Himalayan region, from Naini Tal, 6,000 feet, and Askot, 4,500 feet, up to Dwáli, nearly 10,000 feet.

111. Rahinda hordonia, Stoll. Ránibágh, the Tarai, and the Rámganga, Káli, and Gori valleys, common, 1—4,000 feet.

112. Neptis emodes, Moore. Common all over Kumaon from 2,000 to 7,000 feet.

113. Neptis varmona, Moore. Káli valley, Eastern Kumaon, also Haldwáni in the Tarai, 1—3,000 feet.

114. Neptis nandina, Moore. Loharkhet, N. W. Kumaon, 5,000 feet.

115. Neptis vikasi, Horsf. Sarju valley at Kápkot, 4,000 feet, rare.

116. Neptis soma, Moore. Common in the Sarju, Gori, and Káli valleys, 2—4,000 feet.

117. Neptis susruta, Moore. Káli valley, 2—3,000 feet.

118. Neptis mahendra, Moore. Common, extending from the Sarju and Káli valleys at 2,000 feet, up to over 9,000 feet near Dwáli, N. W. Kumaon, and at Budhi, N. E. Kumaon. My specimens differ from those in the Indian Museum in being darker red below with all the white markings smaller.

119. Neptis amba, Moore. Káli and Sarju valleys, 2—5,000 feet. Most of my specimens are much darker than the common *amba* of the N. W. Himalayas, and are by no means fixed in type, gradually changing to *cartica*, which is therefore in my opinion only a form of this species. The allied *carticoides*, however, seems distinct.

120. Neptis ananta, Moore. Rámganga valley, 2,500 feet, rare.

Suborder RHOPALOCERA HETEROPODA.

Family LYCÆNIDÆ, Stephens.

Subfamily Amblypodinæ.

121. Panchala ganesa, Moore. Naini Tál, Dhánkuri, 6—8,000 feet.

122. Panchala rama, Koll. Kumaon generally, 1,000—8,000 feet. Though it belongs to a tropical group, I found it flying in great numbers on the mountain near Rámgarh (7,500 feet) in December, when the ground was powdered with snow. The males and females of *rama* are very much alike. *Dodonæa*, which I have from Mari, seems to be a distinct species.

123. Iraota mæcenas, Fabr. One male, Jhulaghát, eastern border of Kumaon; an extremely variable species wherever I have found it.

I prefer to separate this group from the next by the structure of the prehensores, the clasps of *Deudorix* being very small and immoveably fixed on each side of the intromittent organ, which is not retractile; while in *Amblypodia* they are free and tolerably well developed. As for the egg, I had examined that of some twenty species of the *Amblypodia* group, including several of the genera, and found it always covered with acute spines. But in all the females of *rama* examined by me, there were two easily-distinguished forms of egg present in about equal numbers, the one with the spines acute as in *Amblypodia*, the other with them truncate as in *Deudorix*.

Subfamily Deudoriginæ.

124. Virachola isocrates, Fabr. Charma valley, Eastern Kumaon, 3,000 feet.

125. Deudorix epiarbas, Moore, (*epijarbas*). Kumaon generally, 2—6,000 feet.

126. Baspa melampus, Cram. Almora, Loharkhet, Káli valley, 2—6,000 feet.

127. Hysudra selira, Moore. Almora, Pyura, 4—6,000 feet.

128. Bidaspa nissa, Koll. Kumaon generally, 3—7,000 feet. My specimens rarely show any trace of the red spot above, and are of a richer metallic above and a deeper rufous below than Simla specimens. The genus seems very close to *Rapala*.

129. Rapala schistacea, Moore. Lower Rámganga and Sarju, 2—4,000 feet. Distinguished by the beautiful blue of the hindwings and the basal part of the forewings, when seen in certain lights, especially from behind.

130. Rapala grisea, Moore. Kápkot, Bágheswar, Kháti, 3—7,000 feet. This species, which has the transverse band below broader than in *schistacea*, and the wings dull steel-blue in all lights without the brilliant cyaneous reflections of that species, has been identified by Mr. de Nicéville as *orseis*, Hew. (from Sumatra), and so named by him in his lists of the butterflies of Sikkim, Calcutta, and the Andaman Islands.

An aberrant male and female from Jhulaghát on the western border of Nepál differ in the extreme width of the transverse band below, which is very dark, and on both wings of the male, and less perfectly in the hindwing of the female, is united with the dark discocellular band. I prefer not to separate this form from *grisea*, though it is perhaps distinct.

131. Curetis thetis, Drury, (*thetys*). Káli valley, not common. Except in the outline of the wings, which is that of the typical *thetis*, my Kumaon specimens do not differ from *bulis*. The red is confined to a rather small area of the forewing, indented from above, and not reaching the hind margin.

132. Curetis bulis, Doub. Sarju, Káli, and Gori valleys, 2—5,000 feet. Male as in the preceding form, the red of the forewing occupying most of the cell, but not extending above middle median on the disc, the hind margin widely black. Female with a large white medial area on the forewing indented at the end of the cell. Hindwing with a small lunular white patch on the disc, extending to the whitish costa. It thus seems to resemble *dentata*, Moore, in colouring, but the hindwing, like the forewing, is very strongly angled. My specimens vary remarkably in size. Though the prehensores are very complicated in this genus, I have not been able to detect the slightest difference between those of the two species (?) here called *bulis* and *thetis*.

133. Loxura atymnus, Cram. Ránibagh and the Tarai, 1,000 feet. Of the position of this as of the preceding genus, I am still uncertain.

Subfamily Theclinæ.

134. Cheritra acte, Moore. Askot, 5,000 feet, Baghrihát, 2,500 feet, E. Kumaon, scarce.

135. Cheritra jafra, Godt. Jhulaghát, Gori, and Káli valleys, 2—3,000 feet.

136. Spindasis lohita, Horsf., (*himalayanus*, Moore). Below Kápkot, 3,500 feet, scarce.

137. Spindasis vulcanus, Fabr. Haldwáni at the foot of the hills, 1,000 feet.

138. Tajuria longinus, Fabr. Haldwáni at foot of hills, 1,000 ft., one male.

139. PRATAPA DEVA, Moore. Kápkot, 4,000 feet, a female. It resembles a specimen from Sikkim in the Indian Museum, being much darker than those from Kánara and the plains of Bengal, the blue on the forewing covering only the lower half of the base of the cell, paler blue from the hind margin to just above the middle median, broken by black veins, the margin broad and black. Hindwing bluish as in *deva*, but powdered with gray scales, and interrupted by black veins, and by a submarginal line of joined dark lunules, the costal border widely dark. Owing to my ignorance of the male, I am unwilling to describe the species as new.

140. REMELANA YAJNA, n. sp. Allied to *megisbia*, Hewitson. Black, the upper part of the *hindwing* glittering azure from the first subcostal to the radial, extending beyond into the cell (slightly), and almost to the costal and the upper median veins, but not approaching the apex or the costa. Anal lobe gray, touched with fulvous and bluish, a slender marginal bluish line on the lower part of the hindwing, cilia dark. *Below* rufous-brown, darker at apex. On the *hindwing* a slender transverse line of fulvous crosses the wing, almost straight to the lower median, bordered outwardly with slender lines of black and white, continued by similar lines at right angles with it from the lower median to the abdominal margin. On the *forewing* the line is chiefly white (the fulvous and black being obsolescent), slender, and sinuous, extending from the submedian almost to the costa. A broken submarginal darker line obscurely visible on both wings. Lower part of hindwing with a large area of gray extending to the upper median, bordered outwardly with white and black lines, part of abdominal margin white. Anal black spot partly bordered with fulvous and silvery lilac, a submarginal black-centred fulvous spot between the lower medians. Tails black, tipped with white, the outer more slender than the inner, and somewhat shorter. Antennæ black annulated with white, club black. Expanse 1⅓ inch.

Differs from *megisbia*, Hewitson, habitat unknown, in the ground-colour of the underside, which is dull rufous-brown, that of Hewitson's species being orange (in his description) or orange-yellow (in his plate).

Two males, Garjiaghát and Baghrihát, on the Káli, 2,500—3,000 feet.

141. CHLIARIA KINA, Hewitson. Loharkhet, N. W. Kumaon, 5,000 feet. *Male, forewing* widely black over the apex, costa, and outer margin to the lower angle; a large whitish discal patch (greenish or bluish in different lights, just entering the cell and extending from the submedian to the upper median, and obscurely along the median basally and the submedian discally) set in the middle of an area of

bright blue, only visible in some lights, and extending to the hind margin and nearly to the costa. *Hindwing* bluish-gray over the outer disc from submedian to lower subcostal, and also on the abdominal margin basally, with three somewhat darker spots anally and subanally, of which that between the lower medians is rather distinct. Edge line black, fringe white, cell and the space between the subcostals blue in some lights as on the forewing. *Below*, whitish with a silky lustre, two dark transverse lines across end of cell of forewing, a dark discal transverse line in two parts, narrowed, and removed inwardly below the upper median. Two darker lines of joined lunules submarginally; edge line of both wings dark. *Hindwing*, a black spot near the costa basally, a double streak across end of cell, a dark transverse discal band broken into six pieces, that near the costa being nearly black, a submarginal line of streaks backed by a continuous irregular dark-gray line, a black spot surrounded with dark ochreous between the lower median branches, a smaller similar spot on the lobe.

Female, black, forewing with a whitish discal area most distinct between the median branches, but extending beyond, and entering the interno-median space as a pale band. Cilia white, especially at the lower angle. Disc of hindwing with a pale area cut by dark veins, a submarginal white line and an obscurely darker subanal spot near the margin. Both sexes have four tails, of which, unlike *othona*, the outer ones are much the shorter. My specimens agree with Sikkim males in Mr. de Nicéville's collection; the Sikkim female I have not seen. They are much darker than Mr. Hewitson's figures. My two males were both taken flying in a flock of the common *Cyaniris puspa*, from which I could not distinguish them till I caught them. If this is a case of mimicry, it is the first, I believe, yet observed in the *Lycænidæ.*

142. CHLIARIA OTHONA, Hew. Lower Gori, E. Kumaon, 2,500 feet, Kápkot, N. W. Kumaon, 4,000 feet. Male beautifully glossed with dark blue on the forewing beyond the cell, seen only in certain lights. Female, the pale blue of the male, replaced by a pale gray area from the hindmargin of the forewing to the middle median. Hindwing with a similar area (without any trace of blue) extending nearly to the margin, where there is a dark subanal spot with fainter ones near it. Marginal black and white edge-lines as in male. *Below* like the male, marks somewhat paler, subanal black spot bordered narrowly with pale ochre, wings wider and more rounded than in the male.

143. ILERDA ODA, Hew. Naini Tal, 6,000—7,000 feet.

144. ILERDA BRAHMA, Moore. Naini Tal, Lohárkhet, 5—7,000 feet.

145. ILERDA SENA, Koll. Kumaon generally, extending up to

Budhi in Byáns (9,000 feet), and down to 3,000 feet. It frequents drier and more open ground than the other species.

146. Ilerda tamu(?), Koll. Upper Sarju, Pindari, and Káli valleys, 5—9,000 feet, scarce.

147. Ilerda coruscans, Moore. Same localities. This species is shining greenish-blue well beyond the cell, and to the hind margin of the forewing, and over the disc of the hindwing. The preceding species is merely powdered with the same colour, which does not extend on the forewing beyond the cell or to the hind-margin, and is nearly obsolete on the hindwing. As in other *Ilerda*, these species are easily distinguished by their prehensores, the clasp of *coruscans*, seen from the side, being truncate and apparently unarmed, while in *tamu*(?) it is very broad and rounded at the end, with a line of strong, bent hooks. The uncus of *tamu* seen from the side is shorter than in *coruscans*, and its branches are more bent. I name the preceding species with great doubt, being unable to distinguish between *tamu*, *androcles*, *moorei*, and *langii*. It is so difficult to describe, and so impossible to figure the colouring of an *Ilerda*, that I think it will be very hard for the student to separate the four species mentioned, except by examination of the prehensores, which ought to be figured.

148. Ilerda epicles, Godt. Eastern Kumaon, in the Káli valley, 2—4,000 feet, at Askot (5,000 feet) and the Dhoaj Mountain (6,000 feet). This genus is very close to *Chrysophanus*, the prehensores being generically the same, though each species has its characteristic form.

149. Chrysophanus timæus, Cram. (*timeus*). Naini Tál, 6—7,000 feet, above Garbyan, and at Kálápáni, N. E. Kumaon, 11—15,000 feet. Comparing the prehensores of my specimens with those figured by Dr. White, I should suppose the species distinct from the European *phlæas* (*phlœax ?*).

150. Chrysophanus pavana, Kollar. Kumaon generally, 4,500—13,000, local.

151. Surendra quercetorum, Moore. Bágheswar, Lower Rámganga, Gori, and Káli valleys, 2—4,000 feet. The egg clearly shows that the genus is near *Thecla* and remote from *Amblypodia*.

152. Thecla (or Zephyrus) birupa, Moore. Outer Himalayas, Pyura and Rámgarh, 4,000—7,000 feet.

153. Thecla syla, Koll. Dhánkuri, 9—11,000 feet, N. W. Kumaon.

154. Thecla icana, Moore. Dhánkuri, 9—11,000 feet, N. W. Kumaon, also in Chaudáns in N. E. Kumaon.

155. Thecla mandara, n. sp. Allied to *icana*, but whereas that species is metallic over the disc of the hindwing and most of the

forewing, interrupted by black veins, and appears green in some lights and violet in others, this species is only touched with obscure violet close to the base of the forewing: the disc has a faint lustre, as if greasy. *Below* more rufous than *icana;* the transverse discal line extends to the lower median, slightly bent inwards at its lower end; the discal band of the hindwing is straight, the submarginal band rounded: both are tinged with reddish. A blurred, obsolescent ocellus of black and reddish anally and subanally. Outer margin of the forewing strongly convex, sinuous, outer margin of hindwing not scalloped, abdominal marginal not excavated, but straight or slightly convex. The prehensores, though generally resembling those of *icana*, are quite distinct. Both are distinguished from *syla* and *birupa* by the uncus seen from the side being divided horizontally. In *icana* the upper lobe is slender, bent downwards, and projects beyond the lower. In this species the upper lobe is straight, and shorter than the long and massive lower lobe. The clasp (which in both species tapers obliquely upwards) here ends in a blunt, almost vertical point, while in *icana* it ends in a sharp horizontal beak. The uncus in *birupa* and *syla* is very different, being broad and entire, when viewed from the side.

There is an allied species undescribed in the Indian Museum, collected by Mr. de Nicéville in the Jalauri Pass, N. W. Himálayas. It is distinctly violet above in all lights and has a silver-white line across the hindwing below.

Subfamily GERYDINÆ.

156. ALLOTINUS MULTISTRIGATUS, de Nicéville. Two females, Askot, 5,000 feet, E. Kumaon. I also found it common at Dimagiri and Barakhal in the Chittagong Hill Tracts, and on Sirtai Mountain in the Lushai country. I wrote a description of it last September, but on my return to Calcutta found that Mr. de Nicéville had anticipated me, giving it the name of *Gerydus multistrigatus.* It is not, however, a *Gerydus*, the tarsi being cylindrical, the first joint nearly twice as long as all the others combined. The egg is extremely flat, strongly bicarinate at the side, more than three times as wide as high, with the sculpturing all but obliterated above. The third subcostal branch is given off opposite the end of the cell, for which reason I put it in the genus *Allotinus.* Of the other Indian species of the *Gerydinæ*, *drumila* is very much like *multistrigatus;* it likewise has the legs cylindrical, but the third subcostal is emitted a little beyond the end of the cell. It has been found in Sikkim, Cachar, and the Lushai country. *Paragerydus horsfieldii*, and another allied species entirely black above, occur abundantly in Arakan and the Chittagong Hill Tracts, north of which they

have not yet been observed. The egg is not quite so flat as in *multistrigatus*, and there is no trace of carination: it is beautifully reticulate above. *Hamada*, Druce, described from Japan, is found in Sikkim, Cachar, and the Chittagong Hill Tracts; it is very unlike any other member of this group, if indeed it belongs to it at all. From the structure of the prehensores I should rather place it among the *Lycæninæ*. The legs are short and thick, the wings broad and rounded, the third subcostal originates before the end of the cell. I did not succeed in examining its egg. Another species of this subfamily I found abundantly in the Chittagong Hill Tracts. Sikkim specimens of it have been identified by Mr. Moore with *boisduvalii* from Java. It is the only true *Gerydus* yet known from India. All the *Gerydinæ* which I have examined are distinguished by the extraordinarily flattened egg, and by the curious structure of the prehensores, the clasps being very long, broad, thin and plate-like, somewhat resembling the "valves" of the *Papilionidæ*. It is my impression that the egg of *Catapœcilma* (*Catapæcilma*, Butler) *elegans*, Druce, is intermediate in character between those of the *Deudorix* and *Gerydus* groups.

Subfamily PORITINÆ.

157. PORITIA HEWITSONI, Moore. A male and a female, Káli valley at Garjiaghát.

Subfamily LYCÆNINÆ.

158. EVERES DIPORA, Moore. Everywhere from 1,000 to 10,000 feet. The red area on the hindwing below is variable. The female is dark brown above. The male is indistinguishable from *parrhasius*.

159. TARUCUS THEOPHRASTUS, Fabr. Haldwáni at the foot of the hills.

160. TARUCUS VENOSUS, Moore. Bágheswar, Sarju valley, common; also in the Káli valley, 2,000—4,000 feet.

161. ——— ? PLINIUS, Fabr. Jhulaghát, Káli valley, 2,000 feet. The structure of the costal and sub-costal veins of the forewing shows that this species does not belong to Mr. Moore's genus *Tarucus*. It is perhaps allied to the next group.

162. AZANUS UBALDUS, Cram. Ránibágh and Haldwáni at the foot of the hills, Jhulaghát in the Káli valley, 2,000 feet.

163. AZANUS GAMRA, Lederer, (*crameri*, Moore). Haldwáni, scarce.

164. POLYOMMATUS BÆTICUS, Linn. Kumaon generally, up to Budhi, 9,000 feet.

165. LAMPIDES ÆLIANUS, Fabr. Ránibágh, at the foot of the hills; Sarju and Káli valleys, 2—4,000 feet, scarce.

166. CHILADES LAIUS, Cramer, (*varunana*, Moore). Haldwáni at the foot of the hills.

167. CHILADES PUTLI, Koll. Everywhere up to 7,000 feet.

168. CASTALIUS ROSIMON, Fabr. Jhulaghát, 2,000 feet.

169. CATOCHRYSOPS STRABO, Fabr. Lower Gori valley, also at Ránibágh, 1—3,000 feet.

170. CATOCHRYSOPS CNEIUS, Fabr. (*cnejus*). Kumaon generally up to 10,000 feet (Dhánkuri).

171. CATOCHRYSOPS PANDAVA, Horsf. Ránibágh, Sarju valley, 1—4,000 feet.

172. NACADUBA DANA, de Nicéville. Kumaon and the plains, up to 5,000 feet, not so common as *ardates*. It is quite different from the tailless *ardates* of Orissa, the hindwing being broad and truncate.

173. NACADUBA CŒLESTIS, de Nicéville. One male, Jhulaghát, 2,000 feet.

174. NACADUBA ARDATES, Moore. Kumaon generally up to 5,000 feet, common. The tailless form, which in Orissa and the Eastern and Western Gháts is almost as common as the tailed, apparently does not occur in Kumaon.

An aberrant male, Ránibágh. The transverse discal band of the underside is extremely broad on both wings, united with the discocellular streak. This aberration occurs in many *Lycænidæ*. I have a remarkable example of it in a specimen of *Nacaduba prominens* from Bassein, Burma, and in one or two specimens of *Zizera maha* and *Z. sangra*, in which the discal spots are all very elongate below. Similar though much rarer variations occurs in the *Argynnis* and *Cynthia* groups of the *Apaturidæ*, of which I have an example in an *Atella*. One or two species have been based on these curious monstrosities.

175. ZIZERA PYGMÆA, Snellen. Ránibágh, 1,000 feet.

176. ZIZERA SANGRA, Moore. Ránibágh, Jhulaghát, 1,000—2,000 feet.

177. ZIZERA MAHA, Koll. Kumaon generally from the plains up to 9,000 feet.

178. ZIZERA KARSANDRA, Moore. Ránibágh, Bágheswar, 1,000—4,000 feet.

179. LYCÆNA ARIANA. Moore. Naini Tál, 4,000—8,000 feet.

180. LYCÆNA ASTRARCHE, Bgstr. (*nazira*, Moore). Naini Tál, Dhánkuri, 6,000—10,000 feet.

181. CYANIRIS CŒLESTINA, Koll. Naini Tál, Jágheswar, 6—8,000 feet.

182. CYANIRIS HUEGELII, Moore. All Kumaon as low as Bágheswar 3,500 feet, as high as Garbyán, 12,000 feet.

183. Cyaniris dilectus, Moore. Khâti, N. W. Kumaon, 7,000 feet, Toli and Garjiaghát, East Kumaon, 2—3,000 feet scarce. My specimens are very small.

184. Cyaniris albocæruleus, Moore. Khâti, N. W. Kumaon, 7,000 feet, rare.

185. Cyaniris vardhana, Moore. Jágheswar, 7,500 feet, rare.

186. Cyaniris marginata, de Nicéville. Dhánkuri, Kháti, 7—10,000 feet. *Female.* Both wings chiefly black, *forewing* with the white area larger and clearer than in the male, extending from the lower median to the lower radial, and into the end of the cell, where it is indented from above. Extreme base of forewing from cell to hind margin dull greenish-blue. Hindwing with a subapical white patch over three spaces, a black spot between the upper median and the radial, sometimes a streak across the end of the cell, a line of obscure whitish submarginal lunules. Part of the disc between the white area and the abdominal margin dull bluish. Below like the male.

187. Cyaniris puspa, Horsf. Kumaon generally, up to 7,000 feet, down to 2,000 feet. All these species except the first two, are easily distinguished both by their colouring and marking and by the shape of their prehensores.

188. Pithecops zalmora, Butler. Jhulaghát, Káli valley, 2,000 feet.

189. Pathalia malaya, Horsf. (*albidisca*, Moore). Ránibágh, Bágheswar, Kápkot, Jhulaghát, Dhárchula, 1,000—5,000 feet. All my Kumaon specimens, as well as those taken by me in Burma and Chittagong, are tailed, while in Orissa, Ceylon, and the Eastern and Western Gháts, their place seems to be taken by a tailless form. Of this last, those from Ceylon and the Western Gháts are apparently *Megisba thwaitesii*, but those from Orissa and the Eastern Gháts seem to me identical with *malaya* except in the absence of the tail. The occurrence likewise of the tailless form of *Nacaduba ardates* in those districts is worthy of remark.

Family ERYCINIDÆ, Swainson.

Subfamily Nemeobinæ, Bates.

190. Dodona durga, Koll. Kumaon generally, 2,500 to 8,000 feet.

191. Dodona eugenes, Bates. Naini Tál, 6—7,000 feet, Loharkhet, 5,000 feet, not common.

192. Abisara suffusa, Moore. Ránibágh 1,000 feet; also at Askot and in the Káli valley, 2,000—5,000 feet.

193. Abisara fylla, Hew. Askot, the Dhoaj, Eastern Kumaon, 4—7,000 feet.

194. Zemeros phlegyas, Cram. (*flegyas*). Askot and the lower Káli, Eastern Kumaon, 2—5,000 feet.

Family LIBYTHEIDÆ, Westwood.

195. Libythea myrrha, Godt. Kumaon generally from the Tarai up to 4,000 feet.

196. Libythea lepita, Moore. Almora, Naini Tál, Kháti, Chaudáns, 5—8,000 feet. The prehensores are quite different from those of *myrrha*, from which species it seems perfectly distinct.

Suborder RHOPALOCERA HEXAPODA, Constant Bar.

Family PIERIDÆ, Duponchel.

197. Terias venata, Moore. Bágheswar, Askot, 3—5,000 feet. Felder describes a form of this species under the name of *santana* from Káladungi at the foot of the Kumaon Himalayas.

198. Terias drona, Horsf. Bágheswar, Almora, Naini Tál, 3—6,000 feet.

199. Terias hecabe, Linn. Everywhere up to 8,000 feet, occasionally higher. Many varieties, but none seem even locally constant.

200. Terias læta, Boisd. Eastern Kumaon, Askot, Gori, and Káli valleys up to Dhárchula, 2—5,000 feet.

201. Ganoris (or Mancipium) canidia, Sparrm. Hills generally, 2,000—11,000 feet, from the Káli valley at Jhulaghát up to Garbyán in Byáns.

202. Ganoris ajaka, Moore. Naini Tál, Dhánkuri, Kháti, Dwáli, 6,000—11,000 feet.

203. Aporia soracte, Moore, (*soracta*). Pindari valley, 9,000 feet, scarce.

204. Synchloe callidice, Esp. Two males, Pindari Glacier, 12,000 feet.

205. Belenois mesentina, Cram. Ránibágh, 1,000 feet.

206. Huphina nerissa, Fabr. Haldwáni at the foot of the hills.

207. Delias eucharis, Drury. Almora, Ránibágh, 1—5,000 feet.

208. Delias belladonna, Fabr. Sarju, Káli, and Gori valleys, 2—5,000 feet. If Mr. Butler's distinctions are to be followed, my specimens belong to *horsfieldii*, Gray, described from Nepál.

209. Nepheronia gæa, Felder. Naini Tál, Bhim Tál, 2—6,000 feet.

210. Catopsilia catilla, Cram. Bágheswar, Tákula, Káli valley, 1—6,000 feet.

211. Catopsilia crocale, Cram. Bágheswar, Ránibágh, 1—4,000 feet.

212. Catopsilia pyranthe, Linn. Bágheswar, Káli valley up to Dhárchula, 2—4,000 feet.

213. Catopsilia gnoma, Fabr. Haldwáni at the foot of the hills.

214. Gonepteryx zaneka, Moore. Naini Tál, Lohughát, 6—8,000 feet.

215. Gonepteryx rhamni, Linn. (*nepalensis*, Doub.) Kumaon generally, 3,000—8,000 feet. The Kumaon form does not seem to me distinct from the European. I did not find *carnipennis*, a species recently described by Mr. Butler from the Káli valley.

216. Colias fieldii, Mén. Kumaon generally above 6,000 feet. One taken at Garjiaghát on the Gori, 2,500 feet, others as high as 16,500 feet, near Tárá, on the Chinese border.

217. Colias hyale, Linn. Lohughát in Káli Kumaon, 7,000 feet.

218. Ixias pirene, Linn. (*pyrene*). Káli valley, 2—3,000 feet.

219. Ixias marianne, Cram. Haldwáni at the foot of the hills.

Family PAPILIONIDÆ, Leach.

Subfamily Parnassinæ.

220. Parnassius jacquemontii, Boisd. Pála, Jhidikhár, and Táglakhár, Chinese Tibet, 13,000—16,000 feet.

221. Parnassius hardwickii, Gray. Bireg Mountain and the Pindari valley, N. W. Kumaon, Byáns valley N. E. Kumaon, 10,000—15,000 feet.

Subfamily Papilioninæ, Swainson.

222. Papilio machaon, Linn. (variety *asiaticus*, Mén.). Common from 2,000 feet in the Sarju and Káli valleys up to 14,000 feet in Byáns and 12,500 feet in the Pindari valley.

223. Papilio (Dalchina) cloanthus, West. Kháti, Loharkhet, Lower Rámganga, 2—7,000 feet.

224. Papilio (Dalchina) sarpedon, Linn. Sarju, Rámganga, Gori, and Káli valleys 2—5,000 feet.

225. Papilio (Zetides) axion ?, Felder. One battered male, Askot, E. Kumaon, 5,000 feet.

226. Papilio (Zetides) agamemnon, Linn. Lower Gori, 2,500 feet, scarce.

227. Papilio (Sarbaria) polyctor, Boisd. Almora, Sarju, and Rámganga valleys, 2—5,000 feet.

228. Papilio (Achillides) paris, Linn. Káli valley, 2—3,000 feet. The metallic area on the hindwing of all my specimens is blue rather than green.

229. Papilio (Byasa) philoxenus, Gray. Pindari valley, 7,000 feet, scarce.

230. Papilio (Menelaides) aristolochiæ, Fabr. Ránibágh and Haldwáni at the foot of the hills.

231. Papilio (Orpheides) erithonius, Cram. Ránibagh, Bágheswar, 1—4,000 feet; generally replaced by *machaon* except in the Bhábar and the outer hills.

232. Papilio (Sainia) protenor, Cram. Kumaon generally, 2—6,000 feet, though never very common.

233. Papilio (Laertias) polites, Linn. (*polytes*, or *pammon*). Kumaon generally, 1,000—6,000 feet, common.

234. Papilio (Chilasa) dissimilis, Linn. Káli valley at Jhulaghat and Baghriát, 2—3,000 feet, scarce.

235. Papilio (Chilasa) panope, Linn. Káli valley at Jhulaghát, 2,000 feet, scarce.

236. Papilio (Charus) helenus, Linn. Káli valley, Dwálisera, 2,000 feet, scarce.

Family HESPERIADÆ, Leach.

Subfamily Hesperinæ.

237. Hesperia (or Pyrgus) galba, Fab. Bágheswar, Balwakot, Dhárchula, 2—4,000 feet.

238. Hesperia kashmirensis, Moore. One male, Garbyán, N. E. Kumaon, 12,000 feet.

Subfamily Suastinæ.

239. Badamia exclamationis, Fabr. Near Bhim Tál, Outer Range, 3,000 feet.

240. Choaspes benjamini, Guér. Lower Sarju valley, 2,000 feet. I am not sure of the position of this genus and the preceding one.

241. Suastus toona, Moore. Lower Gori, 2,500 feet.

242. Suastus eltola, Hew. Gori, Kali, and Sarju valleys, 2—5,000 feet, common and variable.

243. Suastus gremius, Fabr. Askot, E. Kumaon, 5,000 feet.

244. Hyarotis adrastus, Cram. Lower Gori, 2,500 feet, Tákula, 5,000 feet, scarce.

245. Tagiades atticus, Fabr. (*menaka*, Moore). Sarju, Káli, Gori valleys, 2—4,000 feet.

246. Sarangesa purendra, Moore. Naini Tál, 4,000 feet, Almora, 5,000 feet.

247. Sarangesa dasahara, Moore, Gori and Káli valleys, 2—4,000 feet.

248. Satarupa sambara, Moore. Bágheswar, Tákula, Lower Gori, 2—5,000 feet.

249. Abaratha saraya, n. sp. One male, Bágheswar on the Sarju (the Sarayu or Saraya of the Sanskrit poets), 3,500 feet.

Agrees with Mr. Moore's description of the genus *Abaratha* except that the apex of the forewing is not acute but right-angled, that of the hindwing decidedly rounded. The outer margin of the hindwing is also more scalloped, and less irregularly angulate. *Above*, fuscous with the following tawny-ochreous marks: a line of streaks just within the margin; a line of square spots from the costa to the upper median branch, continued to the hind margin by a series of larger and more irregular blurs, removed further from the outer margin; a dull area just beyond the cell, from costa to the middle median; three large irregular spots occupying the middle of the cell, and the two spaces below between the submedian and the middle median. Also the following translucent spots; five apical ones, the upper three elongate and approximate; one at the end of the cell, almost bifid, with a dot on the costa above it; four on the disc from the submedian to the upper median, the second from above largest of all and adjoining that at the end of the cell. Also one in the cell near the base. All these are surrounded by blackish rings above and below. A blackish marginal line; cilia long, alternately black and whitish. *Hindwing* rusty ochreous, with a marginal dark line, and a discal, a cellular and a sub-marginal row of dusky spots, but no translucent ones. *Below* paler ochreous, without any rufous tinge, the translucent spots set in small blackish patches, a submarginal line of joined dusky spots, and a dark streak near the base from the submedian to the median veins. *Hindwing* with a black transverse streak at the end of the cell, a fainter one nearer the base of the cell, and a circle of large and conspicuous black spots, nine in all, round the disc, whereof two are between the costal and the subcostal, and two between the median and the submedian veins; whitish hairs at the extreme base. Body dull ferruginous above, whitish below. Female unknown.

Differs from *ransonnetii*, Felder, its nearest ally, in the absence of all white on the disc below. In colouring it is somewhat intermediate between *ransonnetii* and the curious *Abaratha agama* of Sikkim, which seems to mimic *Argynnis issæa*.

250. Antigonus angulatus, Feld. Lower Sarju valley, 2—3,000 feet.

251. Halpe separata, Moore. Kháti and Dwáli, Pindari valley, 7—9,000 feet. The female differs from the male in the larger size and squarer shape of the apical and cellular translucent spots. In the male the outer discal spot is sometimes wanting.

252. Isoteinon masuriensis, Moore. Lohárkhet, N. W. Kumaon, 7,000 feet.

253. ISOTEINON SATWA, de Nicéville. Jhulaghát, Káli valley, rare.

254. COLADENIA DAN, Fab. (*fatih*, Koll.). Gori and Káli valleys, 2—5,000 feet.

255. COLADENIA DHANADA, Moore. Káli valley 2—5,000 feet. I am neither sure that these two species belong to the same genus, nor that either of them (or the two species of *Isoteinon* above named) should be placed in this subfamily, which includes many of the larger Indian *Hesperiadæ*, and especially those of the *Ismene* group.

Subfamily BAORINÆ.

Cyclopides Group.

256. CYCLOPIDES SUBVITTATUS, Moore. Sarju valley 3—6,000 feet, Kali 2,500 feet.

257. ? PLESIONEURA SUMITRA, Moore. Pindari valley, 7—9,000 feet, Chaudáns, 7,000 feet.

258. ? PLESIONEURA PULOMAYA, Moore. Pindari valley, 7—9,000 feet. I have taken specimens transitional between this species and the last, and think it probable that the two are not specifically distinct.

259. ? PLESIONEURA LEUCOCERA, Koll. Sarju and Káli valleys, 2—5,000 feet. Some of my specimens seem somewhat transitional to *munda*, Moore, from the North West Himalayas, the spots of the hindwing being evanescent. My females have the antennæ entirely dark.

Baoris Group. (*Astyci*, Huebner, apud Scudder.)

260. PLESIONEURA CURVIFASCIA, Felder, (*alysos*, Moore). Bágheswar, 3,500 feet.

261. UDASPES FOLUS, Cram. Sarju and Káli valleys, 2—4,000 feet.

262. PARNARA ASSAMENSIS, Wood-Mason and de Nicéville. Gori and Káli valleys, 2—4,000 feet.

263. PARNARA BADA, Moore. Bágheswar, 3,500 feet.

264. CHAPRA KARSANA, Moore. Lohárkhet, 5,000 feet.

265. CHAPRA MATHIAS, Moore. River-valleys 2,000—4,000 feet.

266. CHAPRA PROMINENS, Moore. Lower Rámganga, 2,500 feet.

267. THANAOS STIGMATA, Moore. Bágheswar, Balwakot, 2—4,000 feet. Varies considerably.

268. TARACTROCERA SAGARA, Moore. Bágheswar, Dhárchula, common, 2—4,000 feet.

269. TELICOTA BAMBUSÆ, Moore. Káli and Gori valleys, 2—4,000 feet.

270. PADRAONA DARA, Moore. River valleys, 1—4,000 feet, common.

271. PADRAONA MÆSOIDES, Butler. Ditto. Differs from the preceding chiefly in the rich, dark tawny-ochreous colour of the underside, *dara*

being greenish-yellow set with dark scales. The markings are almost exactly alike. The prehensores are singularly different: Seen from above, the uncus of *dara* is gradually acuminate, that of *mæsoïdes* abruptly truncate and slightly bilobed; seen from the side the uncus of *dara* is slender, tapering and pointed at the tip, that of *mæsoïdes*, which is surmounted by a prominent tuft of hairs, is blunt and rounded at the tip; the clasp of *dara* is much more slender than in *mæsoïdes*, and its terminal hook much more produced and bent.

The prehensores of the *Hesperiadæ* are by no means so constant as those of other butterflies, and are lacking in *generic* characteristics. Nevertheless, their study seems to me absolutely necessary to any clear understanding of the species.

VI.—*On a second Species of Uredine affecting* Abies smithiana, *Forbes.*

By SURGEON A. BARCLAY, M. B., *Bengal Medical Service.*

[Received Jan. 8th;—Read Feb. 3rd, 1886.]

(With Plates IV. & V.)

The Himalayan spruce-fir (*Abies smithiana*, Forbes) harbours yet another uredine. This tree, as I have already mentioned in a former paper,* is not common in Simla, though very common at slightly higher elevations a few miles beyond the station. A few, however, do occur in the station, and on three of them this second species of uredine was found. Two of these grow in the garden of a house towards the western side of the station, and were most probably planted there for ornamental purposes, whilst the third grows in an open, though preserved, forest on "Jakko," a peak towards its eastern end about two miles as the crow flies from the first mentioned locality. I noticed the parasite for the first time early in July when it was in all cases fully mature.

The abnormal appearances caused by the growth of this fungus differ very widely from those already described as characteristic of infection by the first described species. The whole tree is generally besprinkled with the fungus, and it is then conspicuous by the amount of yellow discoloration occasioned. In this affection also the youngest shoots only are attacked, not one of the needles of the preceding year's growth being involved. A marked difference, however, in the behaviour of this parasite, as compared with the first species described, lies in this that not every needle of an attacked shoot is involved. Indeed, only a few needles may be affected, although frequently the greater number are (fig. 1). Nevertheless, some intermediate needles always remain free. Again, no marked hypertrophy of the tissues is caused by this parasite, and the affected needles are not curved. Each affected needle usually bears several æcidia, the number varying from four to thirteen or even more. A large zone of yellow discoloration surrounds each æcidium. If only a few æcidia are borne, and these at some distance from one another, a corresponding number of yellow rings encircles the needle; but when the æcidia are numerous, the whole needle may be uniformly discoloured with the exception of about a quarter of an inch of its extremity. Whilst the peridia are still unopened, the æcidia appear usually as long linear yellowish swellings with their long axes coincident with the length of the needles; but they are sometimes short and spherical. They occasionally attain a length of 2·5 m.m., rarely more, and when ripe open by irregular frayed rents on their summits. The peridium is then seen to be white. The æcidia are usually borne on the upper surfaces of the needles, though frequently also on their sides, but never on their lower surfaces. The spermagonia, which may be recognised as minute dark spots, are irregularly scattered all over the needle.

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* *Supra*, p. 1.

Microscopical Characters.—In a transverse section of a needle through an æcidium but little derangement of the normal tissue elements will be observed. Thus, the resin canals are not obliterated, and the general arrangement of the palisade-like parenchyma-cells is maintained everywhere, except where replaced by the æcidial fructification. The central wood-bundle is not disturbed. The æcidia are buried deeply in the parenchymatous tissue with generally only one layer of these cells between their bases and the endodermal sheath surrounding the central bundle (fig. 7). As the æcidial fructification ripens, the hypodermal layer of cells together with the overlying epidermal layer is first lifted and then rent. Ripe æcidia in such transverse sections measure about 0·294 m.m. in breadth and 0·259 m.m. in depth. They are covered by a peridium of a single layer of long flat cells each measuring on an average 36 to 60 μ in length by 20 μ in breadth (figs. 5. and 7). At the basis of æcidia and spermagonia mycelial filaments are aggregated in masses, but elsewhere they are sparingly present. At such places the masses of filaments dissociate the parenchyma-cells. The mycelium nowhere penetrates the cells, and, consequently, there are no haustoria. The hyphæ vary in diameter from 4 to 5 μ in diameter. They contain a few minute globules of orange-yellow oil (fig. 2). Filaments may be seen coursing through the whole of the tissue underlying the discoloured parts of needles, excepting the central bundles, which are efficiently protected by the endodermal sheaths. Their structure may be most conveniently observed in the air-cavities below stomata, where they may generally be seen (fig. 6). The hymenium is flat, and the æcidiospores are given off in single rows from short sterigmata. Each spore of a series is separated from adjoining ones by an intercalary cell or lamella. These intercalary cells are best seen between the upper spores of a series, being there larger and rounder, whilst between the lower spores they are thin and wedge-shaped (fig. 3).

The æcidiospores are for the most part oval, measuring on an average $30 \times 24\ \mu$, but varying from $24 \times 24\ \mu$ to $34 \times 22\ \mu$. The epispore is covered with prominent deciduous spines, which sometimes become detached in flakes. The whole thickness of the epispore is about 2 to 3 μ. They contain orange yellow granular contents sometimes with large oil globules (fig. 4). The spores were on several occasions placed in water in a moist cell with a view to observing their mode of germination, but they persistently refused to grow. I had no opportunity of discovering whether they would germinate after a period of quiescence; probably such a period is necessary for them before germination is possible.

The spermagonia are likewise deeply set with their bases below the hypodermal layer of cells (fig. 8): they have no hairs on their summits and measure about 0·353 m.m. in width by 0·287 m.m. in depth.

I looked carefully and often on all the surrounding vegetation for indications of a further cycle of development of this uredine, but could find no uredo- or teleutospore formation which I thought could possibly be related to it. It has evidently no relationship with the uredine occurring on the same host described in my former paper, for in the forests in which that species was found in great abundance this one never occurred. Although the individual shoots attacked by the former parasite are far more seriously injured, the entire shoot being killed by it, yet as regards the whole tree the fungus just described must be the more harmful owing to the much larger number of needles attacked which fall early leaving the tree in a very ragged condition.

EXPLANATION OF THE PLATES.

PLATE IV.

Fig. 1. General appearance of an affected shoot showing that only the needles of the last season's growth have been attacked and that many needles among those attacked have escaped entirely. About natural size.

" 2. Fragments of mycelial filaments, × 340.

Fig. 3. Row of æcidiospores towards the base of a series: showing intercalary cells or lamellæ most distinctly between the upper spores, × 340.

„ 4. Mature æcidiospore, × 340.

„ 5. Peridial cells, × 340.

„ 6. Showing a few mycelial filaments in an air-cavity below a stoma, × 849.

Plate V (Photographs).

Fig. 7. Transverse section of a needle through an æcidium shewing the depth to which its base extends, and a fragment of the pseudoperidium outside.

„ 8. Longitudinal section of a needle showing a spermagonium above and the margin of an æcidium below.

VII.—*Notes on Indian* Rhynchota. No. 6.—*Addenda and Index.*

By E. T. Atkinson, B. A., President of the Society.

[Read November 4th, 1885.]

Genus Pœcilopsaltria, Stål.

J. A. S. B. liii, (2), p. 211.

Basal cell of tegmina irregularly four or somewhat five-angled, very often broad; ulnar veins altogether distant at the base: head broad, obtuse, with the eyes broader than the scutellum; vertex more than twice broader than the eyes; ocelli twice and often thrice more distant from the eyes than from each other; frons slightly or moderately convex, at the base before the vertex scarcely or but a little prominent: thorax angulated on both sides: first femora without distinct spines; metasternum elevated, the elevated part furrowed, and somewhat sinuately truncated (*Stål*, Hem. Afr. iv, p. 2).

1. Pœcilopsaltria affinis, Fabricius.

J. A. S. B. liii, (2), p. 211, no. 2.

Body of a moderate size, spotted black: margin of thorax dilated: tegmina obscurely greyish, posterior margin broadly hyaline with several fuscous spots: wings much shorter, fulvous, black before the margin, striated fulvous, margin itself not hyaline but fulvous (*Fabr.*).

♂ ♀. Pale olivaceous-flavescent or virescent: lores (margin excepted), clypeus (ridge excepted), two small apical spots on, and two transverse lines towards, the base of the frons, a band on the genæ, a spot including the ocelli, two spots at the eyes and a transverse line (sometimes obliterated) on the vertex, a broadish lateral intramarginal line on the thorax, four basal spots (the median pair somewhat large), a narrow oblique lateral line (posteriorly abbreviated), and three small posterior spots on the scutellum, basal limbus of the dorsal segments of the abdomen and a lateral spot on the four last ventral segments, black. Tegmina opaque whitish yellow, clouded fuscous, a median spot in the radial area and a spot occupying the middle of the 1-2 paler ulnar areas, the apical areas (the entire eighth area and basal and apical parts of the first area excepted) vitreous, colourless; ulnar veins marked at the apex and near the apex on both sides with a small fuscous spot: wings lutescent; a narrow streak and the apical part, outwards broadly, and inwards narrowly, obscurely fuscous; this apical part at the veins and the veinless limbus and anal area, weakly lutescent. Head obtuse, frons slightly convex: lateral apical part of the vertex lying between the frons and the eyes subequal in breadth to the subbasal part of the frons; clypeus sinuately truncated at the apex: ocelli more than twice as distant from each other as from the eyes: sides of thorax much angularly dilated, angles somewhat straight, rounded at the extreme apex: sides of the interior ulnar area somewhat parallel behind the middle: metasternum elevated, longitudinally impressed in the middle, sinuated anteriorly: the veinless limbus of both tegmina and wings of equal breadth (*Stål*).

Genus PLATYPLEURA, Amyot & Serville, Stål.

J. A. S. B. liii, (2), p. 211.

Body stout, large: head not or scarcely broader than the scutellum, rarely narrower: ocelli rarely a little more than twice as distant from the eyes as from each other: the sides of the thorax much flattened out, foliaceous, horizontal, anterior angles turning towards the middle of the eyes, anterior margin sinuated behind the eyes; posterior limbus broad: basal cell of tegmina broad; ulnar veins emitted from it, distant at the base, interior ulnar area gradually broader towards the apex: entire tympana or the greater part concealed; opercula moderate, transverse, rounded at the apex, slightly valvate (*Stål*).

2. PLATYPLEURA CILIARIS, Linnæus.

Cicada ciliaris, Linn., Syst. Nat. (10th ed.) i, p. 436 (1758); Mus. Lud. Ulr. p. 155 (1764); Olivier, Enc. Méth. v, p. 757 (1790); Germar in Thon's Arch. ii, (2), p. 2 (1830); Silb., Rev. Ent. ii, p. 78 (1834): Stoll, Cig., p. 102, t. 26, f. 147 (1788).

Cicada ocellata, De Géer, Mem. iii, p. 220, t. 33, f. 2-3 (1773): Olivier, Enc. Méth. v, p. 751. t. 112, f. 3 (1790): Cape.

Tettigonia marmorata, Fabr., Syst. Rhyng. p. 38 (1803), Amboina.

Cicada marmorata, Germar, Thon's Archiv. ii (2), p. 17 (1830); Silb., Rev. Ent. ii, p. 79 (1834): *Platypleuraid.* Sign., B. S. E. F. (6 sér.) i, p. xlii (1881), China.

Oxypleura (?) marmorata, Walker, l. c. p. 24 (1850).

Platypleura ciliaris Stål, Hem. Fabr. ii, p. 3 (1869); Ofvers. K. V-A. Förh. p. 500 (1862); id. p. 707 (1870): Butler, Cist. Ent. i, p. 185 (1874).

Stål (in Hem. Afric. iv, p. 16, 1866) makes *P. ocellata*, De Géer of Walker, (excl. syn.) and *P. capensis*, Am. & Serv., one with *P. hirtipennis*, Germar, and also *Cicada plumosa*, Germar, a variety of the same species; again (in Ofvers. K. V.-A. Förh., p. 500, 1862) he unites *Cicada ocellata*, De Géer, *Cicada varia*, Olivier, from the Cape, and *Platypleura arcuata*, Walker (Ins. Saund. p. 1), from Ceram, with *P. ciliaris*, Linn., but Butler (l. c.) keeps the last two separate. Olivier is the only one that gives India as the locality; and I include the species in our Indian list as it is also recorded from Java and the Philippines, the fauna of which have a marked affinity with that of India.

Thorax with a rim: tegmina pale with white patches: wings blackish ferruginous, with a yellowish band bent back towards the disc and sometimes triple: abdomen blackish with pale and ciliated rings *(Olivier)*. Head and thorax green, spotted black: tegmina fuscous and variegated cinereous, with two whitish spots before the costa, which is virescent at the base: wings dull black with two small lines at the base, and a spot towards the margin, rufous; body cinereous (*Fabr.*).

3. PLATYPLEURA SPHINX, Walker.

J. A. S. B. liii, (2), p. 213, no. 6.

♂ ♀. Body pale tawny, tinged with white, briefly whitish pilose: vertex with two brown bands: rostrum tawny, tip brown reaching the hind coxæ: antennæ dark tawny: mesonotum with four obconical dark brown marks, outer pair long, inner pair short and pointing to two dots of the same colour: legs pale tawny; tips of the tibiæ darker; claws piceous, tawny at the base; first femora with tawny teeth which hardly rise above the surface; hind tibiæ with tawny spines which are piceous at the tips: tegmina whitish, brownish tawny towards the base and having elsewhere some irregular pale brown marks which, here and there, include white spots; veins yellow: wings brown, mostly yellowish white towards the base and having a large spot of the same colour in the disc, white at the tips with a white spot on the hind border which elsewhere is brown; flaps yellowish-white, with broad brown borders.

4. PLATYPLEURA CÆLEBS, Stål.

J. A. S. B. liii, (2), p. 213, no. 7.

♂. Sericeous, above testaceous; beneath with feet greyish : head above and wings sordid flavescent, middle of the vertex and apical lateral band, frons (basal spot excepted), two minute spots behind the middle of the thorax, two median basal spots on the scutellum, an oblong discoidal spot, and another very large, oblong-obtriangular, lateral spot on both sides, extended from the base beyond the middle, also the dorsum of the abdomen, black : venter fuscous : tegmina clouded pale fuscous and greyish-sericeous from the base beyond the middle, vitreous towards the apex ; anastomoses and the apical and subapical spots on the longitudinal veins, fuscous : wings very slightly infuscate towards the apex, limbus sordid whitish, very slightly infuscate in the middle. Allied to *P. subrufa*, Walker, in stature, breadth of apical limbus of the tegmina and wings, and the form of the thorax, but the frons is more obtuse, much less prominent and the coloration and marking very distinct. Vertex more than twice as broad as the transverse eye ; ocelli almost thrice as distant from each other as from the eyes : frons occupying a little more than one-third of the face : thorax gradually dilated from the base to a distance beyond the middle, thence rounded and abruptly narrowed : costa moderately dilated, subcostal vein and costa contiguous throughout their entire length : seventh apical area of the tegmina shorter than the eighth : apical limbus of tegmina and wings of equal breadth, that of the tegmina colourless : opercula somewhat longer than their greatest breadth, yellow-greyish, infuscate at the base (*Stål*).

5. PLATYPLEURA ANDAMANA, Distant.

J. A. S. B. liii, (2), p. 214, no. 8.

♀. Tawny pubescent : face moderately convex, transversely furrowed, with a deep central longitudinal furrow ; luteous with two short black basal lines on each side of the vertex : a narrow black fascia, extending from eye to eye immediately in front of the ocelli : eyes brilliant, castaneous, broadly pilose behind : pronotum deeply furrowed with frontal edge and two small foveæ, placed close together near the middle of the hind border, piceous : mesonotum with two large obconical spots extending backwards from the fore border midway between which there is a discal dart-shaped mark and two dots wide apart near the hind border, black : there are also two other somewhat obscure black marks situate on the fore border on the outer sides of the large obconical spots : metathoracic cross with its fore borders piceous : abdomen above with the segmental sutures black, clothed with a luteous pubescence ; anal appendage piceous, castaneous. Underside with legs ochraceous : rostrum extending to the second abdominal segment ; its tip, two spots on the sixth abdominal segment, knees, and tarsi piceous : tegmina dark brown with pale semi-opaque markings, especially on the apical half. Basal third thickly covered with pale pubescence and containing five dark-brown spots, of which the most prominent are two which are subcostal, situate beyond the middle of this space, and a third one below the basal of those two spots. Remainder of tegmina less pubescent with a number of whitish spots, of which the most prominent are a transverse row stretching across from near the costa to the inner border, immediately beyond the basal third pubescent space ; another more waved row beyond the middle, confluent near the costa, where they are very visible below : a subapical marginal row of five whitish oblong spots, arranged on the veins of which the apical ends are dull brown ; and an outer marginal row of six dark-brown spots, also arranged on the veins and of which the lowest is the largest ; a dull whitish fusiform spot on the inner angle which is very distinct on the underside : wings castaneous with a dark brown marginal border and some suffused dark-brown discal streaks extending across the wings (*Distant*).

6. PLATYPLEURA NICOBARICA, Butler.

J. A. S. B liii, (2), p. 233.

Allied to *P. fulvigera*, Walker, from the Philippines, but larger, with tegmina longer ; the whole of the spots crossing the coriaceous area, testaceous ; those crossing its apex, smaller : the blackish transverse spots considerably smaller : the wings longer, the subapical, transverse, fasciolæ replaced by 3-4 decreasing longitudinal fulvous streaks : pronotum considerably broader, its lateral angles more oblique and therefore more prominent (*Butler*). Body long, 21 : exp. teg. 77 millims.

7. PLATYPLEURA BASIALBA, Walker.

J. A. S. B. liii, (2), p. 214, no. 10.

♂. Body yellow, whitish pubescent, whitish pulverulous beneath : band in front and behind on the frons, also a stripe of short bands on each side, slender bands on the genæ, bands on the antennæ and their tips, seven small marks on the pronotum, three stripes on the mesonotum of which the side pair are oblique and the middle one straight, widened on each side by the fore border, and a small spot on each side near the hind border, black : eyes and antennæ tawny ; ocelli red : abdomen black ; drums, tip and hind borders of the segments yellow : legs yellow, briefly whitish pubescent ; tips of claws black : hind tibiæ with tawny spines; first femora with two small teeth beneath: tegmina colourless, white at the base above, brown at the base beneath; from this brown hue a short tawny stripe proceeds along the hind border and communicates with an oblique brown band which crosses the tegmen near its base: wings colourless, dark brown with a whitish outline for near half the surface from the base which is tawny; flaps dark brown; veins tawny; piceous at the tips of the tegmina.

8. PLATYPLEURA OCTOGUTTATA, Fabricius.

J. A. S. B. liii, (2), p. 216, no. 13.

Head pallid with two dull-black parallel bands, three ocelli in the middle of the upper dilated band, two dots and a pale spot in the middle of the lower: thorax anteriorly rufous, a broad pallid band in the middle, posteriorly dull black with a great trifurcate spot, testaceous: abdomen black: tegmina at the base black; at the middle with four, large white spots 3-1; at the apex, hyaline: wings short, black, posterior margin, white *(Fabr.)*.

♂, ♀. Testaceous-flavescent, whitish sericeous: disc of thorax, testaceous: two bands on the head and spots on the scutellum, black: anterior band on the head in front spotted yellow: tegmina vitreous, scarcely basal half fuscous; spot near the apex of the radial area and anterior band, whitish, opaque; anastomoses margined fuscous; small spots (sometimes wanting) arranged in two subapical rows, fuscous: wings black-fuscous, veins sanguineous towards the base; broad veinless limbus colourless, vitreous; head very broad (*Stål*).

9. PLATYPLEURA SUBRUFA, Walker.

J. A. S. B. liii, (2), p. 216, no. 14.

♀. Body tawny: two stripes on the head of which the fore one forms a circlet on the face, a row of bands on each side of the face, tip of rostrum, the antennæ, two marks on each side of the scutellum, black: rostrum tawny reaching the hind coxæ: posterior lobe of the pronotum pale tawny, piceous; mesonotum with four black marks, side pair large and obconical, inner pair smaller and nearly round, a black dot behind each of the latter: posterior margins of the abdominal segments and the tip mostly black: legs tawny, claws paler with black tips; tegmina colourless with a broad white band one-third of the length from the base; the colourless part includes a brown band, its cross-veins are clouded with brown and there are two imperfect rows of brown dots on the tips of the longitudinal veins of the marginal areolets:

wings brown, tawny at the base with a broad, interrupted white band and a white spot at the tips; veins dark tawny, flaps brown.

Specimen from Nagar (Sind).

10. PLATYPLEURA BUFO, Walker.

J A. S. B. liii, (2), p. 216, no. 15.

♂. Body tawny: two irregular bands on the head of which the hinder one passes over the region of the ocelli, tip of rostrum, the antennæ, and median mark on pronotum, black: rostrum tawny reaching the posterior margin of the drums: posterior lobe of pronotum pale tawny, ferruginous: mesonotum and abdomen ferruginous, the latter tawny at the tip and beneath: legs tawny, tips of claws, black; first femora armed with two very short and blunt tawny teeth: wings very slightly tinged tawny, but tawny towards the base and bright tawny along the costal margin; veins tawny, darker towards the tips; transverse veins darker.

11. PLATYPLEURA CERVINA, Walker.

J. A. S. B. liii, (2), p. 217, no. 16.

♀. Body and rostrum pale buff; tip of the latter black, reaching the hind coxæ: antennæ piceous, buff at the base: legs pale buff; claws black, tawny towards the base; first femora with small teeth; hind tibiæ with buff spines having black tips: tegmina and wings whitish, veins yellow, the former buff along the costal margin; transverse veins clouded brown and a row of brown dots on the tips of the longitudinal veins of the apical areas.

12. PLATYPLEURA HILPA, Walker.

Platypleura hilpa, Walker, List Hom. B. M. i, p. 6 (1850); Butler, Cist. Ent. i, p. 185 (1874).

Pœcilopsaltria hilpa, Stål, Berlin Ent. Zeitschr. x, p. 168 (1866).

Platypleura fenestrata, Uhler, Proc. Acad. N. S. Phil., p. 282 (1861).

Body in ♂, tawny and in ♀, dark tawny: a broad irregular band across the vertex, bands on the face, the rostrum, the antennæ, sides of the posterior lobe of the pronotum, four broad obconical stripes on the mesonotum of which the inner pair are not more than half the length of the outer pair and between these latter a conical stripe and behind them five spots of which two on each side of the middle one which is angular and joins the conical stripe above mentioned, parts of the pectus and the abdomen, black: abdomen at the tip beneath and opercula and drums in the ♂, tawny; the opercula rather large: legs very dark tawny, claws black towards the tips, first femora not spinose: tegmina and wings in ♂

paler than in ♀, the former nearly colourless, dark tawny towards the base with four broad irregular brown bands and along the hind border two connected rows of brown spots: wings dull tawny with two brown bands, the inner one broader than the other but not extending more than half across the wing; flaps tawny *(Walk.)* Long, 21; teg., 67 millims. Reported from China.

13. PLATYPLEURA HYALINOLIMBATA, Signoret.

Platypleura hyalinolimbata, Sign., Bull. S. E. F. (6 sér.), i, p. xlii (1881).

Close to *P. repanda*, Linn., from which it differs in having the wings entirely of a velvety blackish brown, bordered by a broad hyaline limbus, veins of a distinct yellow: tegmina with the flattened marginal space between the side and the veins broader than in *P. repanda;* the expansion of the pronotum is concave and sinuated below, whilst in *P. repanda* it is convex (*Sign.*).

Reported from China.

14. PLATYPLEURA REPANDA, Linnæus.

Cicada repanda, Linn., Syst. Nat. i (2) p. 707 (1766): Mus. Lud. Ulr. p. 159 (1764): Gmelin ed. Syst. Nat. i (3) p. 2097 (1782): De Géer, Mém. iii, p. 209, t. 33, f. 1 (1773): Olivier, Enc. Méth., V, p. 754 (1790): Germar, Thon's Arch. ii, fasc. 2, p. 220 (1830); Silb., Rev. Ent. ii, p. 78 (1834): Guérin in Tigny Hist. Ins. vi, p. 189 (1830).

Tettigonia repanda, Fabricius, Spec. Ins. ii, p. 321 (1781); Mant. Ins. ii, p. 267 (1787); Ent. Syst. iv, p. 23 (1798); Syst. Rhyng. p. 41 (1803).

Fidicina ? repanda, Walker, List Hom. B. M. ii, p. 90 (1851).

Platypleura ? repanda, Walker, l. c. Suppt. p. 13 (1858).

Tawny or yellowish brown; a black line and several small black patches on the thorax: opercula very large: abdomen black above: tegmina and wings tawny, transparent along the posterior margin near which is a series of transparent oval patches; tegmina have a like patch on the exterior border and a waved transverse line, brown in the middle. Body long, 27 millims.

Reported from India.

Genus TACUA, Amyot & Serville.

J. A. S. B. liii, (2), p. 217.

Head broad, as broad as the thorax, triangular, with a longitudinal groove in the middle of the frons: eyes stout, prominulous: entire lateral margins of thorax somewhat flattened out, anterior angles rounded, tegmina and wings entirely opaque: abdomen stout, tumid; opercula in ♂ very large, reaching at least the middle of the abdomen (*A. & S.*).

15. TACUA SPECIOSA, Illiger.

J. A. S. B. liii, (2), p. 217, no. 17.

Black: pronotum with a narrow border anteriorly and a broad posterior band yellow with a greenish tinge, posterior margin of mesonotal cruciform elevation and two spots confluent with the margin orange-yellow: abdomen black, 5-7 segments yellow above with a greenish tinge and with a rounded black spot on the fifth segment: tegmina black or brownish olive with a dark green tinge, veins sanguineous: wings black with a broad sordid whitish limbus: feet black.

Genus TOSENA, Amyot & Serville.

J. A. S. B. liii, (2), p. 217.

Head broad, triangular; frons very tumid without a longitudinal groove in the middle: eyes stout, prominulous: lateral margins of thorax very narrowly somewhat dilated, forming a tooth before the middle: the tegmina and wings entirely opaque with a weak, elevated, transverse line in the middle of each tegmen: abdomen stout, inflated; opercula as in *Tacua* (*A. & S.*).

16. TOSENA MELANOPTERA, White.

J. A. S. B. liii, (2), p. 217, no. 18.

In size and colour resembles *T. fasciata*, Fabr. (reported from Java) but in the latter, the veins of both tegmina and wings are of a very clear ferruginous colour, the band is obscure yellow, there is a ferruginous line (sometimes interrupted) on the front of the clypeus, the anterior margin of the pronotum has four small ferruginous spots and the tips of the femora are yellow. In *T. melanoptera*, White, the veins of the tegmina and wings are nearly entirely black, the band on the tegmina is whiter and generally broader than in *T. fasciata*, the clypeus is entirely black, there are no spots on the anterior margin of the pronotum, the yellow marks above the antennæ are smaller and the legs are of an uniform black (*White*).

17. TOSENA MEARESIANA, Westwood.

J. A. S. B. liii, (2), p. 217, no. 19.

Black: posterior margin of pronotum, yellow: mesonotum posteriorly on both sides with an oblong, ferruginous spot: metanotum margined fulvous: tegmina black fuscous, veins black: wings broadly testaceous: anal area and slender apical margin, fuscous; veins black (*Westwood*).

18. TOSENA ALBATA, Distant.

J. A. S. B. liii, (2), p. 217, no. 20.

General colour and markings of *T. melanoptera*, White, but tegmina with five longitudinal whitish fasciæ situate between the veins commencing near the base, two of which amalgamate with the broad median transverse band, and a subapical row of five irregular longitudinal fasciæ of the same colour, the first of which is placed at about one-third the length of the outer border from the apical point of the tegmina, and the last is fused into the median band near the inner margin. Wings as in *T. melanoptera*, but with a submarginal row of nine whitish fasciæ commencing near the costa, of which the seventh and ninth are largest, the last very much so; two-thirds of the outer border narrowly edged with the same colour (*Distant*).

19. TOSENA SPLENDIDA, *Distant*.

J. A. S. B. liii, (2), p. 217, no. 21.

♂ Body black: face with the lateral borders dull reddish, with a well-pronounced, central, longitudinal impression; transversely costate, with the interstices wide and irregularly punctate: eyes prominent, luteous and fringed behind with long hairs, pronotum deeply furrowed, much as in *T. melanoptera*, White, with four large luteous spots; two on the disc, sub-oval, converging from immediately behind the eyes towards each other, through two-thirds of the width of the pronotum, their bases widened and separated by a space of about two millimètres; the other two somewhat larger and much more irregular, occupying the posterior lateral angles; mesonotum very sparingly pilose (except near the lateral borders, where the hairs are much longer and more regularly abundant) and with two subcordate luteous spots on the disc, parallel with the pronotal central spots, and, like them, converging towards each other at base: metanotum with two small luteous spots at the base, very indistinct in ♂, but clearly exhibited in ♀: abdomen above pilose: rostrum black, with a small luteous spot near the base, in length just reaching the posterior coxæ. Body beneath and legs pilose; femora with a wide central, rufous band, fore-femoral spines apparently well developed: drums of the usual generic size, but situated close together, and divided by a very slight emargination behind: abdomen with a longitudinal discal row of sub-triangular reddish markings, the bases of which are situate on the posterior borders of abdominal segment. Tegmina and wings, where not obscured by darker markings, transparent, exhibiting varied opaline lustre, which in some lights is found to be varied with a close and regular series of transverse darker striæ:

tegmina at base narrowly dark fuscous: costal area fuscous for rather more than half its length, veins and veinlets bright luteous, and for two-thirds the length of the tegmina, bordered on each side with fuscous: the apical border is also fuscous, very broadly so at the apex, and narrowing towards the inner margin, containing a sub-marginal row of pale luteous spots, which are the outer terminations of an equal number of narrow transverse linear, pale luteous striæ: claval area greenish: wings pale greenish for nearly two-thirds their area from the base, remaining portion shining fuscous, enclosing a sub-marginal row of pale opaline spots, of which the largest is sub-costal and irregular in shape, being somewhat sub-quadrate, hollowed out externally, and produced at the base towards the outer edge: veins and veinlets pale luteous, in some places tinged with green.

♀. Differs principally from the ♂ in having all the colour markings intensified, the tegminal row of sub-marginal spots, which are luteous in the ♂ being pale opaline in the ♀: the abdomen is more thickly clothed with pilosity and the rostrum is somewhat shorter in length than in the ♂. *(Distant).*

♂. Differs from the others in its paler coloration and more transparent appearance but the last peculiarity is shadowed in *T. albata*, Dist. whilst the pronotal and mesonotal spots which ally it to *Gæana* may be seen indicated on the pronotum of *T. melanoptera*, White in which the two discal spots are jointly recognizable whilst the broad pronotal luteous band of that species appears only as two angular spots in *T. splendida.*

Genus HUECHYS, Amyot & Serville.

J. A. S. B. liii, (2), p. 218.

Body slender: head small, triangular, as broad as the pronotum; frons angular, slightly compressed on each side, furnished with a distinct abbreviated longitudinal groove: eyes stout, slightly prominulous: the lateral margins of the thorax not dilated unless anteriorly and not dentated: tegmina entirely opaque, ulnar veins distant at the base: abdomen elongate *(A. & S., Stål).*

20. HUECHYS PHILÆMATA, Fabricius.

J. A. S. B. liii, (2), p. 218, no. 22.

Black: frons, scutellum on both sides and the abdomen, sanguineous: wings fuscous-diaphanous. Differs from *H. sanguinolenta*, Fabr. (same as *H. sanguinea*, De Géer) in its larger size, and in having the red frons immaculate; scutellum red; and dorsal streak, black: tegmina dull black not piceous and the wings smoky-diaphanous *(Fabr.)* Head thorax and feet, black ; entire frons, two large patches on the mesonotum and the abdomen, red : tegmina black, tip sordid white : wings smoky *(A. § S.)*

21. HUECHYS SANGUINEA, De Géer.

J. A. S. B. liii, (2), p. 218, no. 23.

Head, thorax, pectus and feet, black, shining : frons, rounded, red : entire abdomen red : thorax with two large patches in the shape of elevated plates, red, of the colour of sealing-wax : eyes and oviduct in the ♀, brown : tegmina, elongate, somewhat broad, of a very obscure brown approaching black ; longitudinal veins black, distinct : wings transparent of a brownish tint, veins black : ocelli three, pale red : antennæ short, setiform, situate on a much stouter cylindrical part : tegmina longer than the abdomen, wings a little shorter *(De Géer)*.

Head black : frons rufous, a longitudinal line and the rostrum, black : thorax glabrous, black ; a rounded spot on both sides, red : abdomen red : tegmina and wings obscurely fuscous immaculate : feet black *(H. sanguinolenta*, Fabr.). Black, frons sanguineous, anteriorly black : two spots on the mesonotum and the abdomen : tegmina and wings, white ; veins black *(H. incarnata*, Germar). This species is reported from India and Germar remarks that it may be a variety of *C. sanguinolenta*, Fabr. from which, however, it differs in the white, black veined, tegmina, having the apical veins narrowly cinctured fuscous, and the white, black-veined wings broadly margined fuscous. *H. Germari*, Gúerin, is probably also only a variety of this (Mag. Zool. p. 78 ; t. 237, f. 2, 1839) :—Black, frons sanguineous, anteriorly black : two spots in the mesonotum and the abdomen, red : tegmina white, veined black, apical veins narrowly cinctured fuscous : wings black-fuscous, posterior lobe subhyaline *(Guérin)*. Reported from Java.

22. HUECHYS STELLATA, Walker.

Huechys stellata, Walker, Ins. Saund. Hom. p. 27 (1858).

Black : head with two testaceous spots between the eyes : mesonotum with six testacous spots, four in the middle and two behind : tegmina with two broad, irregular, fawn-coloured bands which are connected on the costa, a middle interrupted white band consisting of three large spots which are partly enclosed by the second broad band ; ten exterior white dots on as many areolets : wings with five white dots *(Walker)*. Body long, 31-2 : teg. 92 millims.

Reported from India.

23. HUECHYS PICTA, Walker.

Huechys picta, Walker, Ins. Saund. Hom. p. 28 (1858).

♂, ♀ Black: head with two testaceous bands: pronotum with a testaceous band on the hind border which is broad in the ♀ and extends in the middle to the fore border: mesonotum with a testaceous border and with two testaceous stripes which are broader in the ♀: abdomen red with a black dorsal stripe: tegmina blackish, with a testaceous discal spot near the base, an interrupted testaceous band and two exterior subcostal dots: in the ♀ the discal spot is almost obsolete and there is only one dot: wings crimson, with black borders (*Walker*). Body long, 19—21; teg. 50—52 millims.

Reported from Assam, Java.

Genus SCIEROPTERA, Stål.

J. A. S. B. liii, (2), p. 220.

Head scarcely narrower than the base of the thorax; frons slightly tumid occupying a little more than one-third of the breadth of the face, without a longitudinal furrow; vertex more than twice broader than the eyes: the ocelli as far from the eyes as from each other or a little farther: rostrum not extended behind the intermediate coxæ: first femora stout, spinose beneath; first tibiæ somewhat equal in length to the femora: six apical areas, ulnar veins contiguous at the base or united for a short space (*Stål*).

24. SCIEROPTERA CROCEA, Guérin.

J. A. S. B. liii, (2), p. 220, no. 29.

Yellow: head obscure brunneous; spots red: thorax yellow; pro- and meso-notum each with two very large reddish-brown spots: abdomen croceous, more obsolete beneath; feet yellow; tibiæ and tarsi, black: tegmina and wings hyaline, veins yellow, anterior veins with the membrane close to the veins, pale yellow (*Guérin*).

25. SCIEROPTERA SPLENDIDULA, Fabricius.

J. A. S. B. liii, (2), p. 220, no. 30.

Small: head black; eyes pale: thorax pale, with two large rounded black spots: scutellum black, margin pale: abdomen red: tegmina fuscous with a very vivid golden reflection: first femora black, tibiæ very stout, dentated, red: last pair of feet black, femora red (*Fabr.*).

Genus GRAPTOTETTIX, Stål.

J. A. S. B. liii, (2), p. 221.

Vertex twice as broad as the eyes; frons tumid, prominulous, somewhat compressed; ocelli as far from each other as from the eyes: thorax narrowed forwards, at the apex a little broader than the head: rostrum extended scarcely beyond the intermediate coxæ: first femora spinose beneath; first tibiæ longer than the femora: tegmina with ten apical cells, ulnar veins distant at the base (*Stål*).

Genus GÆANA, Amyot & Serville.

J. A. S. B. liii, (2), p. 221.

Body elongate: head triangular, narrower than the base of the thorax; frons tumid, prominulous, rounded, not compressed at the sides, nor grooved: pronotum not dilated: tegmina and wings entirely opaque, the former furnished with eight apical areas, the ulnar veins distant at the base (*A. & S.*, *Stål*).

26. GÆANA SIBYLLA, Stål.

Gæana sibylla, Stål, Trans. Ent. Soc. (3 ser.) i. p. 576 (1863).

♂ Black: tegmina somewhat olivaceous yellow from the base scarcely to the middle: wings beyond the middle, lutescent. Stature of *G. maculata*, Fabr.: frons very tumid: thorax anteriorly somewhat narrower than the head, sides parallel from the apex to the middle, thence abruptly amplified: the costa of the tegmina and the subcostal vein rather distant from each other throughout their entire length, ulnar veins rather distant at the base; apical areas very long, the first, fourth and sixth of equal length: opercula somewhat triangular, rounded at the apex (*Stål*). Long 42; exp. teg., 112 millims.

Reported from Tringany.

27. GÆANA OCTONOTATA, Westwood.

J. A. S. B. liii, (2), p. 221, No. 33.

Black: frontal and posterior band on the head and a posterior band on the pronotum and the mesonotum yellowish, the last with two irregular yellowish lines: abdomen sanguineous, basal segments spotted above with black in the middle: tegmina fuscous-blackish, each with four whitish spots and very fine red veins: wings sanguineous with black lines (*Westw.*).

28. GÆANA FESTIVA, Fabricius.

J. A. S. B. liii, (2), p. 222, no. 36.

Antennæ testaceous: head dull black, a spot on both sides in the ocular area, ferruginous: thorax dull black, anterior margin and broader posterior margin of the anterior lobe yellow and the posterior lobe striated yellow: abdomen dull black, immaculate: tegmina fulvous, veins whitish, a median band and the apex on both sides emitting a tooth like mark, dull black: wings white, dull black at the apex, with a large white spot: feet dull black (*Fabr.*).

29. GÆANA SULPHUREA, Hope.

J. A. S. B. liii, (2), p. 223, no. 38.

Black: head and thorax spotted sulphureous: basal half of wings sulphureous (tegmina divided by an oblique blackish band), apices yellowish-fuscous, veins in the obscure parts black (*Hope*). The tegmina are broadly wrinkled and the drum covers in the ♂ are small, leaving the striated internal membrane broadly exposed.

The following scheme attempts to provide a rough differentiation of some of the genera of clear-winged *Cicadæ* found in India based on Stål's analysis:—

A. Anterior margin of posterior part of the first dorsal segment of the abdomen in ♂ emitting a foliaceous lobe which covers the whole or part of the tympana or is dilated forwards more or less towards the sides. Body oblong or somewhat elongate: first femora spinose or acutely dentate beneath: frons usually more or less convex.

B. (1) Thorax narrowed forwards, lateral margins very often armed with a small tooth before the middle: (2) basal cell of tegmina more than twice longer than broad: (3) interior ulnar area not or but very slightly amplified towards the apex: (4) the ulnar veins very close at the base or contiguous.

I. DUNDUBIA group. A and B above.

1. *Leptopsaltria*: genæ internally near the apex at the base of the lores furnished with a tubercle or tumescence: rostrum reaching a little behind the last pair of coxæ: interior ulnar area of the tegmina not or only very slightly narrowed towards the apex: first pair of tibiæ longer than the femora: tympana above covered by a very large lobe: opercula short: second and third ventral segments in ♂ with a lateral tubercle. The head is narrower than the thorax and the frons is moderately convex.

2. *Dundubia*: genæ without a tubercle: rostrum not or scarcely reaching the base of the last pair of coxæ: the opercula are long and

extended beyond the middle of the venter. The frons is large, very convex and near the base is almost twice as broad as the anterior margin of the lobes of the vertex.

3. *Cosmopsaltria:* genæ without a tubercle: rostrum extending beyond the base at least and very often beyond the apex of the last pair of coxæ: the opercula are long and extended behind the middle of the venter. The frons near the base is not or only somewhat broader than the apical margin of the lobes of the vertex.

4. *Pomponia*: genæ without a tubercle: rostrum and frons as in *Cosmopsaltria*: opercula short, somewhat transverse.

II. CICADA group. A as above.

B. (1) The lateral margins of the thorax always without a distinct tooth: (2) basal cell of tegmina rarely (*Cicadatra*) twice longer than broad, very often broad: (3) the interior ulnar area gradually distinctly amplified towards the apex, seldom (*Emathia*) equally broad towards apex and base: (4) the ulnar veins distinctly (often very) distant at the base.

1. *Cryptotympana:* first apical area extended more forwards than the second: the transverse vein closing the base of the second apical area, very oblique: the space lying between the postcostal marginal vein and the postcostal ulnar ramus linear and not broader towards the apex: the basal cell of the tegmina somewhat (but rarely twice) longer than broad: tympana entirely hidden: metasternum elevated in the middle and furnished with a posterior process turning backwards.

2. *Cicada*: as in *Cryptotympana,* but the metasternum is not or is only a little elevated in the middle and there is no posterior process. The clypeus is truncated at the apex or somewhat sinuately truncated.

3. *Cicadatra:* as in *Cicada,* but the basal cell of the tegmina is twice longer than broad and the tympana are partly visible. The clypeus too is somewhat acuminated or a little rounded at the apex.

4. *Emathia:* the first and second apical areas are extended to an equal distance forwards, the second is, however, longer than the first, the interior basal angle of the first area and the exterior basal angle of the second area are both obtuse: the interior ulnar area is not amplified towards the apex of the tegmina and is equally broad at base and apex: the thorax anteriorly is scarcely narrower than the head and is amplified at the base: the tympana are for a great part visible: opercula short: rostrum scarcely reaching the last pair of coxæ: first pair of femora spinose.

III. TIBICEN group.

Tympana entirely visible; the anterior margin of the sides of the posterior part of the first dorsal segment of the abdomen is not produced and does not send out forwards a lobe.

1. *Tibicen:* ulnar veins distant towards the base, diverging from the base: first apical area of the tegmina produced further forwards than the second: costa and radial vein contiguous towards the apex; veinless limbus of tegmina and wings moderate.

2. *Melampsalta*: ulnar veins contiguous at the base itself or united towards the base: eight apical areas: first and second apical areas of the tegmina equally long and equally extended forwards: space between the postcostal marginal vein and postcostal ulnar ramus, linear.

30. DUNDUBIA MANNIFERA, Linn.

J. A. S. B. liii, (2), p. 223, no. 39: liv, (2), p. 116. *D. nigrimacula*, Walker (List Hom. B. M. i, p. 63) reported from Java and *D. sobria*, Walker (l. c. p. 63) reported from Hongkong are local forms of this species.

Pale subolivaceous-virescent or flavescent: frons very tumid: the dorsum of the abdomen marked by fuscous lateral spots: opercula in ♂ elongate, contracted near the base, very broad behind the middle, rounded at the apex (*Stål*). Body large, testaceous, immaculate: tegmina obscurely whitish, immaculate, costa black: opercula elongate, almost as long as the body, arched, testaceous, armed at the base with a robust, acute, incumbent spine (*Fabr.*). Head, eyes, and part of thorax, also the abdomen, of a light brown above; the rest of the body greenish: tegmina and wings transparent, greenish, spotless: opercula very large, almost as long as the abdomen (*Olivier*).

31. DUNDUBIA MICRODON, Walker.

J. A. S. B. liii, (2), p. 224, no. 40.

♂ Body black: head with a tawny and green stripe in front and with an irregular green circlet on each side of the ocelli: face above with a short yellow stripe and with yellow bands in front: rostrum tawny, tip black, reaching the hind coxæ: antennæ black: pronotum green, with four slightly waved black stripes, outer pair very short, furrows black; posterior lobe green widened and slightly angular on each side in front of which is a very small tooth: mesonotum with four green stripes, the outer pair much longer than the inner pair, a green dot near each side which like the hind border is green: pectus tawny: abdomen black, brown beneath, posterior margins of the segments green: [drums black; opercula dull green, blackish towards the tips, tapering, very long, not far apart, more than half the length of the abdomen?]: legs tawny; femora striated black: fore-tibiæ, feet, and the tips of the other tibiæ, black; fore-femora with three black teeth of which two are long and one very small; a tawny band on the intermediate feet: wings colourless, green at the base; the first and second transverse veins clouded brown; a row of pale brown spots on the tips of the longitudinal veins of the apical areas; veins black; flaps with an opaline lustre.

32. Dundubia vibrans, Walker.

J. A. S. B. liii, (2), p. 224: liv, (2), p. 116.

♂ Body pale tawny, rather long: head a little narrower than the pronotum, with an irregular and interrupted black band; face with black bands on each side; rostrum tawny, tip black reaching the hind coxæ: eyes prominulous: antennæ black: pronotum broadest near the base of the tegmen, with four crooked black streaks, the outer pair short, the sutures also blackish, posterior lobe widened with two large black spots above the base of each tegmen, slightly notched and with a moderate sized tooth on each side: mesonotum with five black stripes, a slight black streak in front between the two side pairs which are slightly oblique, the inner pair much shorter than the outer pair which are almost interrupted: abdomen nearly linear, rather long, with a short black stripe at the base and on each side of the tip, disc of the segments, piceous: drums tawny, close; opercula, bright tawny, bordered with black, about half the length of the abdomen, narrow towards the base, widened towards the tips: legs pale tawny, clothed with paler hairs: tips of the tibiæ and of the feet, piceous; tips of the claws, black; fore femora with three teeth, two large and one small; posterior tibiæ with black spines: tegmina and wings colourless, pale tawny at the base; the tegmina slightly clouded with brown at the tips, the first and second transverse veins clouded with brown, an almost imperceptible brown streak on each apical area; veins partly black, partly tawny, the latter colour prevailing most towards the base; flaps pale tawny at the base.

33. Dundubia nicomache, Walker.

J. A. S. B. liii, (2), p. 224, no. 44.

♂ Body black, nearly linear, tawny beneath: head with two zigzag marks behind the ocelli, a long angular stripe on each side between the eyes, a short stripe on the face, and on each side bands along the whole length, rostrum (tip excepted), lateral stripe, and four large oblique spots on anterior lobe of pronotum, the posterior lobe, and 3-4 irregular streaks on the mesonotum which vary in length and breadth, tawny: tip of rostrum which reaches beyond the hind coxæ, antennæ, sickle-shaped spots on the tawny spots of the anterior lobe of the pronotum, and three large spots near the base of each tegmen, and the abdomen, piceous: drums tawny, close; opercula tawny obconical, very large, a little apart, more than two-thirds the length of the abdomen: posterior margins of the abdominal segments and the underside, tawny, tip piceous: legs tawny; feet ferruginous, claws black, ferruginous towards the base first femora with three tawny teeth, one very small: tegmina colourless, long, narrow, costal margin tawny; veins tawny with two black bands across the disc beneath the stigma, black towards the tips, marked with black at the base; fore-flaps and hind flaps at the base and for a space along the hind border, pale tawny with a brownish tinge.

34. DUNDUBIA TIGRINA, Walker.

J. A. S. B. liii, (2), p. 224, no. 45.

♂ Body tawny, nearly linear, pale sericeous: head with a slight ferruginous tinge above: vertex with four black stripes, the middle pair contiguous, partly united between the ocelli, side pair nearly round on proceeding from the base of the antennæ, thence narrower and slightly curved: a black band on each side of the face; rostrum tawny, tip black, extending a little behind the hind coxæ: antennæ black: four black stripes on the anterior lobe of the pronotum of which the median pair slightly converge from the fore to the hind border, the outer pair are more oblique, posterior lobe very narrow in the middle with a black spot: mesonotum with five slender black stripes, the median entire, inner pair much and outer pair slightly interrupted: abdomen ferruginous above; posterior margins of the segments, piceous; beneath tawny, piceous at the base and tip: drums tawny, close; opercula black, small, far apart, outer margin tawny: legs tawny; femora striped black; tips of the tibiæ, piceous; claws black, ferruginous at the base; fore and middle feet black, last pair ferruginous, first femora with three black teeth, one small: tegmina colourless, long, narrow; costal margin bright ferruginous as far as the stigma, thence to the tip, piceous; veins black, ferruginous towards the base, the first and second transverse veins clouded brown, a row of brown spots along the tips of the veins of the apical areas, all indistinct except first and second; fore flaps grey, hind flaps grey at the base and for a distance along the hind border.

35. DUNDUBIA (?) MACULIPES, Walker,

J. A. S. B. liii, (2), p. 224, no. 46.

♂ Body tawny, whitish pubescent: two interrupted black bands across the vertex; furrows on face, black: rostrum pale tawny, tip black, reaching far beyond the hind coxæ: two black stripes on the anterior lobe of the pronotum, its sides and the furrows also blackish: mesonotum with two U-shaped marks and behind each a dot and on each side an oblique stripe, all black: abdomen with four rows of black spots, two in the middle and one on each side; posterior margins of the segments and the tip, partly black: drums small, blackish, tymbals white; opercula large, pale tawny, slightly overlapping, rather less than half the length of the abdomen: legs pale tawny, with a piceous band near the tip of each femur and tibia, the latter has a similar band near the base: feet tawny, piceous at the base, black towards the tips; femora streaked with black and with one black and one tawny tooth: tegmina colourless, pale tawny and marked black at the base, costal margin green; veins green, black towards the tip; transverse veins black, strongly marked and 1-4 clouded brown; a row of small brown spots near the tips of the longitudinal veins of the apical areas: hind flaps pale brownish, tawny towards the base and for a distance along the hind border.

36. DUNDUBIA (?) SAMIA, Walker.

J. A. S. B. liii, (2), p. 225, no. 47.

♂ Body green, tinged here and there with tawny: ocellar area piceous and a piceous streak on each side along the eye: rostrum tawny, tip black, reaching beyond the hind coxæ: antennæ tawny: a pale streak slightly widened in front and behind on the anterior lobe of the pronotum and a piceous spot on each side: mesonotum ferruginous with some green marks, of which there is a large angular spot in the middle, on each side a forked mark, behind which there is a curved mark, and nearer each side, a slight streak: abdomen tawny, darker at the tip, paler beneath: drums tawny, small; opercula pale-green, small, far apart: legs tawny; tips of the claws, black; femora with three teeth, one very small: tegmina colourless, costal margin green, tawny beyond the stigma; veins green, with a few black bands, tawny towards the tips; transverse veins clouded pale brown; a row of pale brown spots near the tips of the longitudinal veins of the apical areas: fore-flaps and the hind flaps between the middle-veins and the fore-border, brown.

37. DUNDUBIA (?) SINGULARIS, Walker.

J. A. S. B. liii, (2), p. 225, no. 48.

♂ Testaceous, slender, partly green, very pale beneath: interocellar space and a dot on each side of the head in front and two dots near the border of the pronotum, black: mesonotum with an oblique green stripe on each side: abdomen with four rows of triangular, brown, spots: opercula small: tegmina and wings vitreous, with testaceous streaks between the apical anastomoses and the border, veins green or testaceous: tegmina narrow with the transverse veins and the forks of the longitudinal veins, clouded testaceous; a testaceous spot at the tip of each marginal vein communicating with a slight testaceous streak on each apical area a testaceous dot on the hind side of the third ulnar area with distinct indications of two transverse veins one joining the fifth anastomosis and the other ending on the front areola near the base of the second ulnar area; a few minute testaceous dots on some of the marginal and discoidal veins.

38. Dundubia ochracea, Walker.

Fidicina ochracea, Walker, List Hom. B. M. i, p. 99 (1850).
Cicada ferrifera, Walker, l. c. p. 115 (1850).
Dundubia fasciceps, Stål, Ofvers. K. V.-A. Förh. p. 242 (1854); p. 481 (1862).

♂ Sordid yellow; intraocular apical band on the head, blackish: tegmina more than half longer than the abdomen, whitish-hyaline, veins flavescent: below with feet yellowish-white: opercula one-half shorter than the abdomen, subparallel, rounded at the apex (*Stål*). Body long, 26 millims.

Reported from China: the Indian Museum possesses a specimen.

39. Dundubia radha, Distant.

J. A. S. B. liii, (2), p. 225, no. 49.

♂ Body above pale castaneous: head with the area of the ocelli black; pronotum with the lateral and posterior margins and a very narrow anterior margin, ochraceous, the last is inwardly margined by two small, transverse, linear, black spots and the posterior margin has also a very narrow discal inner border of the same colour: mesonotum with a large median, obconical spot on the anterior margin, with a very indistinct median line and with the lateral margins black, outwardly marked with ochraceous; five indistinct basal spots, three within the anterior angle of the cruciform elevation and one on each side of the same: abdomen rather darker in colour with the segmental sutures piceous. Underside of the body concolorous, opercula dull ochraceous: tegmina with the costal membrane and claval area dull ochraceous: wings with the base narrowly of the same colour. The body is much elongated, the head including the eyes, a little narrower than the base of the pronotum; the face is prominently convex, faintly longitudinally furrowed and transversely striated: the rostrum reaches the middle of the posterior coxæ: the opercula are very long, reaching the penultimate abdominal segment, they are abruptly narrowed on the first abdominal segment, then gradually amplified and rounded on each side, maximum width being at the junction of the second and third abdominal segments from whence they are gradually narrowed to the apex which is obtusely rounded (*Distant*).

40. DUNDUBIA TRIPURASURA, Distant.

J. A. S. B. liii, (2), p. 225, no. 50.

♂ Head, pronotum, and mesonotum ochraceous: frons with a triangular black spot near the base, and transverse black striæ which do not meet in the middle, vertex with two large oblique and irregular black fasciæ on the disc, and a large irregular black spot on the inner margin of the eyes: pronotum with two median longitudinal black fasciæ, and three oblique black striæ on each side, the outer one submarginal and somewhat rounded: mesonotum with a large median clavate spot, of which the apex terminates on the anterior margin, bordered on each side by a subconical spot, followed by a small triangular one, and a wide submarginal fascia, black: abdomen dull sanguineous, with a series of discal segmental black fasciæ (these are much larger in some specimens and subconfluent) and a lateral segmental row of irregular black spots. Body beneath with the sternum ochraceous, covered with greyish pubescence: abdomen dull sanguineous; opercula pale sanguineous; legs ochraceous: tegmina and wings pale hyaline. Frons very prominent and convex; head, including eyes, narrower than the base of the pronotum, subequal to the mesonotum in width: opercula subtriangular, well separated at the base, gradually becoming more divergent, and narrowing to the apex, which is obtuse, and almost reaches the apex of the fourth abdominal segment: anterior femora armed with three spines; two moderately large and ochraceous; apical one small and black; posterior tibiæ with three black spines on the inner side near the apex, and two smaller and wider apart on the margin (*Distant*).

41. DUNDUBIA NAGARASINGNA, Distant.

J. A. S. B. liii, (2), p. 225, no. 51.

♂ Body above castaneous: head with the middle of the frons and an oblique fascia on each side of the ocelli, ochraceous: pronotum with a median band and lateral and posterior margins, ochraceous: mesonotum with two anterior median obconical spots denoted by black margins; margins of basal cruciform elevation, ochraceous: abdomen with the basal half sparingly clothed with greyish pile, the apical half much more densely so, and with a broad lateral fascia of greyish pile on each side: body beneath, with the sternum, legs, and opercula, pale ochraceous; abdomen pale castaneous. Tegmina and wings pale hyaline; costal membrane of tegmina ochraceous: head broad, including the eyes subequal in width to the base of the pronotum, and wider than the mesonotum; the face is very tumid, the middle longitudinally sulcated for half the length, and the sides transversely striated; rostrum reaching the apex of the posterior coxæ; opercula long, reaching the base of the last abdominal segment, narrowest and with the edges concave from base to the commencement of the second abdominal segment, from which they are somewhat abruptly widened with the edges convex and the apex somewhat narrower and rounded: anterior femora with two long ochraceous spines; posterior tibiæ with two long black spines, somewhat close together on the inner margin near the apex and two much wider apart on the outer margin *(Distant)*.

42. DUNDUBIA TERPSICHORE, Walker.

J. A. S. B. liii, (2), p. 233, no. 94: liv, (2), p. 117.

♀ Body pale green, slightly tinged with tawny, slightly clothed with white shining down: a black dot on each side of the ocelli: rostrum pale tawny, tip piceous, reaching a little beyond the intermediate coxæ: antennæ tawny: mesonotum with a piceous dot on each side above the cross-ridge: two last segments of the abdomen above and the oviduct, piceous: legs pale tawny tinged with green; claws black towards the tips; first femora with two tawny teeth of which one is small: tegmina and wings colourless, tinged with brown towards the tips, costal margin of tegmina green, slightly spinose, middle part black; veins black, green towards the base, black along the hind border of the tegmina,; flaps buff and tinged with red at the base and for some distance along the hind border.

43. DUNDUBIA (?) EVANESCENS, Walker.

Dundubia evanescens, Walker, Ins. Saund. Hom. p. 6 (1858).

♂ Pale testaceous, slender: head with a black band, and with the usual black marks in front: pronotum with two approximate black stripes and with two black spots on each side: mesonotum with nine black stripes which are more or less abbreviated hindward where there are two black dots: abdomen with six stripes of black spots; the second pair of stripes incomplete: opercula nearly half the length of the abdomen: tegmina and wings vitreous, veins pale testaceous; tegmina with the marginal veins clouded by brown stripes which successively decrease in length, first and second transverse veins clouded with brown, very oblique, third and fourth oppositely oblique, slightly curved or undulating: wings very slightly clouded with brown along the transverse marginal veinlets *(Walker)*. Body long, 21—23; teg., 51—55 millims.

Reported from India.

44. DUNDUBIA (?) GUTTIGERA, Walker.

Dundubia guttigera, Walker, J. Linn. S. Zool. i, p. 83 (1856).

Testaceous : head with three angular stripes and an elliptical ringlet in front and on each side of it transverse lines, two dorsal nearly parallel stripes on pronotum, five stripes on the mesonotum of which the inner pair are abbreviated and the outer pair are interrupted, black : opercula small, rounded : abdomen ferruginous : tegmina and wings vitreous, the former with a brown spot on each transverse veinlet and on the tip of each marginal vein *(Walker)*. Body along, 23 ; exp. teg. 71 millims.

Reported from Malacca, Singapore.

Genus MELAMPSALTA, Kolenati, Stål.

J. A. S. B. liii, (2), p. 225.

Head somewhat as broad as the anterior breadth of the thorax ; vertex about twice as broad as the eyes : frons slightly or moderately convex, furnished with a more or less distinct, median, longitudinal groove : thorax broader posteriorly than anteriorly, the lateral margins obtuse, rarely a little dilated : ulnar veins of the tegmina contiguous at the base or united towards the base eight apical areas, basal cell quadrangular : last ventral segment in ♀ very deeply and broadly emarginate at the apex : tympana entirely visible above : opercula small or moderate : first pair of femora beneath 3—4 spinose *(Stål)*.

Genus COSMOPSALTRIA, Stål.

J. A. S. B. liii, (2), p. 226.

The subgenera founded by Stål (l. c.) are thus distinguished :—

a. Frons very tumid, seen from above distinctly produced before the juga : clypeus rounded at the apex or narrowly roundly subtruncated.

b. Thorax broad anteriorly, entire lateral margins distinctly amplified, ramus of the interior ulnar vein distinctly curved towards the base :—*Platylomia*, Stål *(C. flavida*, Guérin).

b b. Thorax much narrowed anteriorly, lateral margins not or only very slightly amplified : ramus of the interior ulnar vein straight or slightly curved : *Cosmopsaltria*, Stål (*C. spinosa*, Fabr.)

a a. Frons slightly convex, not or but very slightly prominulous before the juga : last dorsal segment in ♂ acutely dentated on both sides at the apex : clypeus narrowly truncated or sinuately truncated at the apex :—*Diceropyga*, Stål (*C. obtecta*, Fabr.).

45. Cosmopsaltria obtecta, Fabricius.

J. A. S. B. liii, (2), p. 226, no. 54.

Head virescent with a black vertical cross and on this the usual ocelli: the thorax green, the anterior lobe with small impressed lines, the posterior lobe with five more distinct abbreviated lines: abdomen virescent, furnished beneath with opercula which are arched, elongated, cinereous and armed at the base with a robust, acute spine: feet virescent with black lines (*Fabr.*).

♂ Weak olivaceous-virescent: an interior marginal spot beneath the middle of the lores; the extreme interior margin of the genæ at the frons; four transverse, lateral, subbasal lines on the frons terminated inwards by a longitudinal line and united, interior apical angle and median subapical spot on the juga; a narrow median band slightly verging forwards on both sides and spots on the vertex including the ocelli, two narrow median streaks very slightly diverging before the middle posteriorly slightly arcuated not extended behind the posterior transverse impression, a small median, lateral discoidal streak on both sides, a small oblong obliquely longitudinal spot behind the lateral oblique median impression, also a streak near the lateral margins of the thorax, three median longitudinal lines (the middle one near the apex of the scutellum the lateral ones abbreviated in the middle of the scutellum), all reaching the base, the lateral ones slightly converging backwards, four small basal spots situate towards the sides, an obliquely longitudinal line abbreviated on both sides, situate behind the exterior basal spot and two small spots placed behind the middle of the scutellum, an irregular spot on the first dorsal segment of the abdomen, two lines (one interior, the other exterior) also two spines on the first pair of femora, an abbreviated upper anterior line on the posterior femora and an indistinct band near the apex of the posterior tibiæ, blackish. A median band and lateral spot (sometimes very obsolete) on the dorsal segments of the abdomen, fuscous-testaceous: tegmina and wings somewhat sordidly vitreous: veins fuscous, olivaceous-virescent towards the base; the apex of the exterior ulnar vein flavescent at the costa; the two exterior anastomoses with a fuscous limbus.

♂ Apical angles of the last dorsal anal segment produced in a long lobe, gradually acuminated, the lobes below and towards the apex fuscous, inferior anal segment obtusely emarginate at the apex: opercula about one-third shorter than the abdomen, beyond the middle towards the apex gradually, thence more abruptly narrowed, inwardly behind the middle rounded, outwardly straight, rounded at the apex, olivaceous-flavescent: second ventral segment armed at the apex in the middle of the sides with a much elevated tubercle. Head equal in breadth to the posterior part of the thorax, anteriorly very obtusely rounded: frons seen from above truncated, scarcely prominulous before the juga, slightly convex, sides distinctly furrowed: thorax somewhat narrowed forwards beyond the middle, thence forming an angle prominulous in a minute tooth, anteriorly more narrowed: tegmina extending beyond the abdomen by half their length; the first anastomosis rather oblique, interior ulnar area gradually very slightly narrowed towards the apex, much obliquely truncated at the apex, interior apical angle obtuse, somewhat rounded: first pair of femora bi-spinose beneath (*Stål*).

46. COSMOPSALTRIA SITA, Distant.

J. A. S. B. liii, (2), p. 226, no. 55.

♂ Head, frons with a central fascia furcate anteriorly and an oblique spot on each side at the base; vertex with a large triangular spot inclosing the ocelli and an irregular longitudinal fascia near the inner margin of the eyes, black: pronotum with two central longitudinal fasciæ joined and rounded near posterior margin, widened and angulated near anterior margin, on each side of these is a small discal waved line and two oblique fasciæ near the lateral margins (the outer one submarginal and rounded) black: mesonotum with a central longitudinal fascia, on each side of which is a clavate, smaller and suboblique fascia, followed by two linear spots on the anterior margin and a discal waved irregular fascia on each side. Abdomen with the segments (excluding first) more or less piceous at the base and with a lateral segmental row of piceous spots: body beneath ochraceous and unicolorous. Tegmina and wings pale hyaline, the former with the venation of the basal half, ochraceous, and of the apical half, fuscous; transverse veins at the base of the 2-3 apical areas, fuscous-ochraceous at the junction. The head, including the eyes, is considerably narrower than the base of the pronotum, the face is only moderately convex, furrowed from beyond the middle, the sides distinctly striated (the face has also an oblong spot bordered with black at the base and the upper striæ are also of that colour). Opercula reach the third abdominal segment, they are moderately truncate outwardly, widened and angulated inwardly (but not meeting) on the first abdominal segment and then diverging and narrowing to the apex which is obtuse and rounded; the inner margin is slightly convex: rostrum reaching a little beyond the last coxæ: anterior femora with two strong spines (*Distant*).

47. COSMOPSALTRIA DURGA, Distant.

J. A. S. B. liii, (2), p. 226, no. 56.

♂ Head, pronotum, and mesonotum dull ochraceous: head with the following black markings; an irregular spot on the frons, a large central fascia on the vertex, reaching from the anterior to the posterior margins, produced on each side in front, enclosing the ocelli ; a curved fascia a little before the inner margin of the eyes, and a subtriangular spot on the apex of the lateral margin : pronotum with the anterior margin (narrow), a central longitudinal fascia, bordered with black on each side, and a triangular fascia on each lateral margin, pale ochraceous ; two narrow oblique fasciæ on each side, a narrow longitudinal fascia on each side of the disc, inner posterior, and inner and outer lateral margins, black : mesonotum with a clavate central longitudinal fascia, bounded on each side by a shorter, broader, and much angulated one, followed by an elongated spot and by a sublateral broad fascia, broken near the anterior margin, two rounded spots near the base, and two smaller ones on the anterior branches of the cruciform elevation at the base : abdomen pale castaneous, disc piceous, gradually widening from the base to the apex, where it is wholly black. Underside of the body ochraceous and unspotted; a black spot on the inner margin of the eyes, anterior tibiæ and tarsi, apices of intermediate tibiæ and tarsi, and apex of the rostrum, piceous. Opercula pale greenish: tegmina and wings pale hyaline, transverse veins at the bases of the second and third apical areas, infuscated. Face broadly sulcated in the centre, and transversely striated (many of the striæ black) ; rostrum passing the posterior coxæ, and reaching the inner angles of the opercula. Opercula reaching the second abdominal segment, the outer margins subparallel with the lateral abdominal margins, hipped and widest (but not meeting) near the bases of the femora, from thence diverging and gradually narrowing to the apex, which is obtusely angulated : anterior femora with two long and prominent teeth, and a shorter one near the apex. Posterior tibiæ with three inner and two outer long marginal spines (*Distant*).

48. COSMOPSALTRIA OOPAGA, Distant.

J. A. S. B. liii, (2), p. 227, no. 58.

Head dull ochraceous : posterior lateral margins of the frons black ; the two basal ocelli surrounded with black, which extends to the posterior margin : pro- and mesonotum pale olivaceous ; pronotum with a central longitudinal ochraceous fascia, bordered with black, which is widest anteriorly, and rounded, with the black lines continuous posteriorly ; mesonotum with two obconical spots, bordered with black on the anterior margin, followed by a small black spot, and an anterior lateral fascia ; a curved basal fascia and a small spot on each frontal side of the cruciform elevation, of the same colour : abdomen dull ochraceous, inclining to olivaceous, with the lateral side sparingly covered with greyish pubescence, and with an indistinct lateral segmental row of fuscous spots. Underside of the body, pale ochraceous or olivaceous: tegmina and wings pale hyaline : the body is broad and somewhat depressed, the abdomen narrowing at the apex : the head, including the eyes, is narrower than the base of the pronotum, and but little wider than the mesonotum : the rostrum about reaches the apex of the first abdominal segment : the opercula, which almost reach the apex of the fourth abdominal segment, are situate on the lateral side of the abdomen, much wider apart at the base than at the apex ; they are concavely narrowed on each side near the base, and are there widened and convex on each side to the apex, which is broad and rounded ; the extreme apex beng on the outer margin. The face is tumid with a curved black fascia at the base, and a central longitudinal furrow ; it is profoundly transversely striated, the interstices being very broad (*Distant*).

49. COSMOPSALTRIA FLAVIDA, Guérin.

J. A. S. B. liii, (2), p. 227, no. 60.

Yellow-virescent : head yellowish-green with a brown spot on each side of the labrum and in front and another blackish spot in the middle between the eyes which are red : the pronotum is broader behind, of the same colour as the head, with a transverse groove rounded at the ends and two oblique grooves in front ; the posterior margin after the groove is flat, wrinkled transversely, bordered brown, also two triangular spots placed in its midst and two lines on the anterior margin but not reaching the middle : mesonotum tumid, smooth, with two deep hollows on the posterior and lateral margins, emarginate behind ; above and at its junction with the pronotum are four angular brown spots, a longitudinal line and two arcuate spots on the dorsum and four rounded spots behind, brown : abdomen yellowish-green, the middle slightly red and the posterior margin of the segments finely edged with black, covered with a silvery white pubescence. Tegmina and wings transparent, veins yellow and in some places, brown ; a row of seven small round brown spots on the external margin of the tegmina (and four on the anastomoses) larger and deeper posteriorly : body beneath more yellowish than above with portions greenish : tip of rostrum black, reaching the posterior coxæ : opercula small, bordered outside with black : femora yellow (anterior pair excepted which have beneath two small spines and the tips, black) ; tibiæ yellow with base and tip blackish ; tarsi brown : oviduct ♀ orange yellow *(Guérin)*.

50. LEPTOPSALTRIA GUTTULARIS, Walker.

J. A. S. B. liii, (2), p. 227, no. 61.

♀ Testaceous varied with green, beneath mostly pale green : head with a 4-forked mark about the ocelli, two transverse streaks on each side, sutures on the face and three streaks on each side, black : a band in front on the pronotum also two stripes which approximate in the middle and three streaks on each side where there is an acute angle in front, a median stripe and five streaks on each side on the mesonotum, four spots on the pectus, and abdomen partly beneath towards the tip, black : tegmina and wings vitreous, veins testaceous, black towards the tips ; tegmina with a whitish stigma, tips and transverse veins and tips of the marginal veins clouded with brown.

51. LEPTOPSALTRIA ALBIGUTTA, Walker.

Dundubia albigutta, Walker, J. Linn. S. Zool. i, p. 83 (1856).

Green, partly testaceous : two lines forming an angle, in front of the ocelli, borders of ocelli, a line on each side of the fore margin of the head, transverse lines along most of the ridges on each side of the frons, and two tubercles on each side of the abdomen beneath, black : opercula small rounded : tegmina and wings vitreous ; the former slightly clouded brown at the tips ; a whitish spot on the costa at the tip of the first apical area ; first and second transverse veins with brown spots (*Walker*). Body long, 18—19 ; exp. teg. 67 millims.

Reported from Malacca, Singapore,

52. COSMOPSALTRIA ANDERSONI, Distant.

Cosmopsaltria andersoni, A. M. N. H. (5 ser.) p. 170 (1883).

♂. Head olivaceous ; lateral margins of the frons, area of the ocelli and a small spot on each side of the same, black : pro- and mesonotum olivaceous, the former with a central, longitudinal, ochraceous band, bordered with black, widest anteriorly and compressed about the centre and with a small curved black line behind the eyes : mesonotum with two obconical spots bordered with black on the anterior margin, on each side of which is a small discal black streak and a curved black spot on each side of the base near the anterior angles of the cruciform elevation, which are also black : abdomen dull, dark ochraceous : underside of body pale ochraceous ; annulation on the anterior femora near their apices, upper surfaces and apices of anterior tibiæ, bases and apices of intermediate and posterior tibiæ and tarsi, apex of rostrum, and apical portion of last abdominal segment, black : tegmina and wings pale hyaline, the first with the costal membrane and the basal portion of the venation, ochraceous ; the remaining portion of the venation more or less shaded and marked with the veins black or olivaceous, and with a black claval streak : wings with the veins black or olivaceous, outer claval margin and an inner claval streak fuscous. The body is broad and somewhat depressed, the abdomen above moderately pilose: the head, including the outer margins of the eyes, is subequal in width or a very little narrower than the base of the pronotum: the rostrum about reaches the middle of the first abdominal segment: the opercula are long, strongly compressed and sinuate near the base, and then widened and convex on each side, but narrowing at their apices which reach the base of the last abdominal segment: face swollen and tumid with a narrow median longitudinal groove and strong transverse striations, the interstices of which are very broad. Allied to *C. oopaga*, Distant, from which its smaller size and the greater length of the opercula at once distinguish it (*Distant*). Long, 32; exp. teg. 88 millims.

Reported from Mergui.

Genus POMPONIA, Stål.

J. A. S. B. liii, (2), p. 228.

Stål distinguishes the subgenera *Pomponia* and *Oncotympana* thus:–

Pomponia—Abdomen in ♂ longer than the head, thorax and scutellum taken together, the first segment occupying the fifth or sixth part of the abdomen, posterior margin straight or somewhat rounded, the anterior lateral lobes moderate, not or very slightly convex, covering only a part of the tympana, space between these lobes broad or somewhat so: last ventral segment acutely dentate on both sides at the apex. (*P. fusca*, Olivier).

Oncotympana Abdomen in ♂ short, shorter or only as long as the head, thorax and scutellum taken together; first dorsal segment occupying about one-third of the abdomen, posterior margin more or less distinctly sinuated; anterior lateral lobes very large, covering the entire tympana, convex, broader than the space lying between them: last dorsal segment in ♂ obtusely rounded on both sides at the apex (*P. pallidiventris*, Stål).

53. POMPONIA URANIA, Walker.

J. A. S. B. liii, (2), 228, no. 62.

♂ Body somewhat fusiform, ferruginous, partly whitish pubescent: head and pronotum tinged with green: rostrum tawny, tip black, reaching beyond the posterior margins of the opercula: antennæ tawny: posterior lobe of the pronotum bright green, partly ferruginous along the fore border no tooth: mesonotum green on each side and at the tip, cross-ridge pale tawny: abdomen green, powdered white beneath, and at the base a short snow white band which forms two triangles: drums pale tawny, close; opercula of moderate size slightly overlapping, full one-fourth of the length of the abdomen : legs tawny, tinged green ; first femora with three tawny teeth, two large, one very small, claws black, tawny at the base : tegmina colourless, slightly tinged with tawny towards the tips, a row of pale brown spots along the tips of the longitudinal veins of the apical areas ; first and second transverse veins clouded brown with traces of it on the others ; costal margin green to the stigma, dark tawny thence to the tip ; veins green, with black bands across the breadth beneath the brand, wholly black towards the tips : basal cellule, flaps at the base and for a space along the hind border, tawny.

54. POMPONIA BINDUSARA, Distant.

J. A. S. B. liii, (2), p. 228, no. 63.

♂ Body above pale ochraceous ; head with the lateral margins of the front bordered with black striæ, and with two contiguous black spots on the disc ; two oblique striæ on the lateral margins of the vertex and the area of the ocelli black : pronotum with two central longitudinal fasciæ, narrowed, joined and rounded on the posterior margin, widely divergent and terminating on the anterior margin, a small curved fascia on each side of the disc and oblique striæ also, black : mesonotum with a central fascia, a shorter and more oblique one on each side, followed by an elongate spot on the anterior margin, and a long, somewhat broken, submarginal fascia, black ; two rounded spots in front of the cruciform elevation, and two smaller ones on the anterior branches of the same, also black : abdomen somewhat thickly covered with pale pubescence, with a series of discal segmental markings, two large spots near the lateral margins of the third and fourth segments, and a lateral segmental row of small spots, black. Underside of the body pale ochraceous : apical disc of the abdomen, black : tegmina and wings pale hyaline ; transverse veins, at the bases of the second and third apical areas, slightly infuscate : face convex : apical two-thirds with a narrow central furrow transversely striated, the striæ black near the middle. Rostrum slightly passing the posterior coxæ, its apex black : opercula small, posterior margins obtusely angulated, and reaching the base of the first abdominal segment, widened and obtusely angulated, but not meeting inwardly : posterior tibiæ with three inner and two outer marginal spines : anterior femora with two long and prominent spines (*Distant*).

55. POMPONIA KAMA, Distant.

J. A. S. B. liii, (2), p. 228, No. 65.

♀ Head, pronotum and mesonotum greenish : head with the lateral sides of the frons, black : vertex with two transverse lines on the lateral margins , somewhat connected inwardly by a short oblique fascia and the area of the ocelli, from which proceed two narrow fasciæ to the posterior margin, black : pronotum with a median, black, clavate fascia, of which the middle is ochraceous, widest and much angulated at the anterior margin, narrowest and somewhat acutely pointed on the posterior margin ; an arcuated narrow fascia on each side of the disc ; oblique striæ pale fuscous ; lateral submarginal striæ black, and an oblique fuscous spot on the lateral margins ; posterior margin narrowly edged with black : mesonotum with two large obconical spots margined with black, and a large Λ fascia in front of the anterior angles of the basal cruciform elevation : tympana pale greenish, fuscous anteriorly, and bright cretaceous-white near the lateral margins : abdomen castaneous, lateral margins of the basal segment bright cretaceous-white. Body beneath with the head, sternum, and opercula greenish ; abdomen castaneous : legs greenish ; apices of tibiæ and tarsi and tarsal claws, black : tegmina pale fuscous hyaline ; anatomoses and apices of the lateral veins at the margin broadly infuscate, and a blackish spot near the termination of the radial, vein : wings pale hyaline : face broad, convex, the middle blackish, and with a central longitudinal impression, and transverse striations : rostrum with the apex black, and just passing the posterior coxæ : opercula very short, not reaching the base of the first abdominal segment : abdomen beneath deeply furrowed at the lateral margins, the disc somewhat gibbous : head, including the eyes, narrower than the base of the pronotum, about equal to the base of the mesonotum (*Distant*).

56. POMPONIA MADHAVA, Distant.

J. A. S. B. liii, (2), p. 229, no. 66.

♂ Body pale greenish : abdomen with a lateral row of three large, oblong, spots, only denoted by their darker green margins, occupying the lateral sides of the first three segments ; segmental incisures narrowly dark greenish : ocelli red ; eyes fuscous : mesonotum with two very faint obconical spots. Body beneath pale greenish : legs and rostrum pale ochraceous : tegmina and wings pale hyaline ; the first with the costal membrane and the veins pale greenish : the head, including the eyes, is narrower than the base of the pronotum ; the face is broad and convex, with a broad central longitudinal impression and strong transverse striations ; the opercula are small, not reaching the apex of the metasternum ; the second and third abdominal segments beneath are rounded, produced, and pointed anteriorly ; the rostrum reaches the posterior coxæ (*Distant*).

57. POMPONIA LINEARIS, Walker.

J. A. S. B. liii, (2), p. 228, no. 64.

♂. Body tawny beneath: head and pronotum piceous, with indistinct tawny marks, chiefly along the sutures; face piceous towards the rostrum, which is tawny with a black tip that extends to the posterior margins of the opercula: antennæ black: pronotum with six pale tawny stripes which proceed from the fore border to the disc: pectus green: abdomen ferruginous, segmental incisures black: the tympana dark ferruginous; opercula green, rather large, hardly apart: legs tawny; fore femora with two sharp tawny teeth; tips of feet and of the claws black: tegmina with an indistinct tawny tinge, slightly coloured with green, pale brown and marked with black at the base, costal margin greenish, transverse veins clouded brown; a row of small brown spots on the tips of the longitudinal veins of the apical areas; veins with alternate black and pale yellow bands; veins of the wings tawny, transverse veins darker; flaps pale brown at the base.

58. POMPONIA IMPERATORIA, Westwood.

J. A. S. B. liii, (2) 229, no. 67.

Luteous-fulvous: head and dorsum of thorax with very many black spots varying in size and form; mesonotum with a trifid mark: sides of pronotum emarginate and angulate in the middle: abdomen brunneous, sides paler, a spot on both sides on each segment, black: wings yellowish hyaline, veins fulvous: subapical transverse veins on the tegmina, clouded fuscous, and seven spots towards the margin, fuscous (*Westw.*)

59. POMPONIA TIGROIDES, Walker.

Dundubia tigroides, Walker, Ins. Saund. p. 5 (1858).

Pomponia tigroides, Distant, J. A. S. B. xlviii, (2), p. 38 (1879); liii, (2), p. 229 (1884), no. 69.

♀. Green, partly testaceous: head with minute black marks in front and on each side and with a large black spot on the vertex: pronotum with six black stripes; the inner pair dilated at each end, the middle pair oblique, the third pair marginal; a curved brown discal streak on each side between the first and second pairs: mesonotum with five black stripes which are slightly dilated posteriorly, outer pair curved posteriorly, two black dots on the posterior margin: abdomen with a black lanceolate mark on each of the first and second segments, with black dots along each side and with a black subapical band: costa of tegmina green, luteous beyond the middle, stigma black with a pale band, veins green, partly black, first and second transverse veins very slightly clouded with brown (*Walker*). Body long, 23 ; teg. 54 millims.

Differs from *D. tigrina*, Walker, by the outward curve of the exterior stripes on the mesonotum, by the spots and band of the abdomen and by the first transverse vein of the tegmina, which is slightly oblique outwards, whereas that of *D. tigrina* is very oblique inwards.

Reported from India, Tenasserim.

60. POMPONIA EXPANSA, Walker.

Carineta expansa, Walker, Ins. Saund. Hom. p. 26 (1858) ; Signoret, B. S. E. F. (6 sér.) i, p. xli (1881).

Pomponia expansa, Stål, Berlin Ent. Zeitschr. x, p. 171 (1866).

♂. Black, short, pilose, very broad : head with two green spots on the vertex ; frons with a green stripe and with lateral transverse testaceous streaks : pronotum with two angular green stripes in the middle and with a curved stripe on each side ; borders testaceous-green with two black spots on each side : mesonotum with various dorsal testaceous marks ; borders green : abdomen blackish-brown ; dorsal and ventral operculas testaceous, with dusky borders, the latter very broad, about half the length of the abdomen : legs testaceous, striped with black : wings vitreous, veins tawny here and there green, partly bright pale green at the base : tegmina with a pale green stigma, a brown spot near the tip of each marginal vein ; transverse veins clouded with brown, first and second slightly oblique and curved, first parted from the second by a little more than twice its length, the third and fourth nearly straight (*Walker*). Body long, 27 ; teg., 96 millims.

Reported from India, China.

61. EMATHIA ÆGROTA, Stål.

J. A. S. B. liii, (2), p. 229, no. 69.

♂. Very pale olivaceous, sparingly greyish-sericeous : a median streak amplified forwards and posterior limbus of thorax, four triangular spots reaching the base of the scutellum (the median small, the lateral spots large), also the dorsum of the abdomen, subtestaceous : tegmina and wings, vitreous ; veins pale olivaceous-virescent, fuscous towards the apex ; a spot on the two exterior anastomoses and a subapical spot at the exterior margin of the tegmina, fuscous ; the first anastomosis of the wings margined with fuscous, the veinless margin inwards at the anal area and the anal area at the base, fuscous : streaks on the femora and apex of tibiæ fuscescent. In the ♂, the opercula are small, oblique, oblong and the first ventral segment is triangularly elevated between the opercula. The head is scarcely broader than the apex of the thorax; the vertex scarcely more than twice as broad as the eyes; frons prominulous. Ocelli somewhat more distant from each other than from the eyes. Thorax either somewhat amplified forwards or with the sides parallel, abruptly amplified at the base. First pair of femora trispinose (*Stål*).

Genus RUSTIA, Stål.

Hem. Afric. iv, p. 8 (1866).

Head as broad as the anterior lobe of the thorax, anterior margin deeply incised between the frons and the freely prominulous lobes of the vertex, lateral part which bears the semiglobose eyes turning somewhat upwards: rostrum short: ocelli twice as distant from each other as from the eyes; eyes remote from the base of the head: the part of the thorax lying before the transverse impression more than twice as long as the posterior part: tympana entirely visible; anterior margin of the sides of the first dorsal segment of the abdomen neither produced nor sending forwards a lobe; ulnar veins of the tegmina distant at the base; wings with five apical areas: first pair of tibiæ not produced in a spine beyond the insertion of the tarsi (*Stål*).

62. RUSTIA PEDUNCULATA, Stål.

Rustia pedunculata, Stål, Berlin Ent. Zeitschr. x, p. 383 (1866).

♀. Testaceous-flavescent: clypeus, lores, genæ (except the ocular part), ocellar area, six streaks on the thorax (median pair and the intramarginal lateral pair narrow), five streaks on the scutellum (the median streak and lateral pair elongate), black-fuscous: the dorsum of the abdomen with obsolete fuscous streaks: tegmina and wings vitreous, veins fuscous, costa and the radial vein yellow-olivaceous, interrupted subapical band (which is dentated posteriorly) on the tegmina, fuscous: last dorsal segment of the abdomen, fuscous; an obsolete median streak and the sides, testaceous-flavescent, the sides with a fuscous spot: last ventral segment very slightly and very broadly sinuated at the apex. Vertex thrice as broad as the eyes: ocelli twice as distant from the eyes as from each other: lateral margins of the thorax parallel, abruptly amplified at the base: interior ulnar area of the tegmina slightly narrowed towards the apex, first apical area longer than the second, seventh and eighth apical areas of equal length, somewhat small: first femora 3-spinose, the subapical spine minute (*Stål*). Long, 13; exp. teg. 31 millims.

Reported from Cambodia.

Genus CICADA, Linnæus, Stål.

J. A. S. B. liii, (2), p. 229.

This is one of the oldest names in the order and has suffered so many changes by the creation of new genera that it would be unprofitable to trace back its history. Taking the changes of the last quarter of a century, we find that in 1866 Stål added *Leptopsaltria*, *Cosmopsaltria*, and *Pomponia* to the *Dundubia* group. The *Cicada* group including *Fidicina* was increased in 1861 (A. S. E. F. (4 sér.) i, p. 613) by *Psaltoda*, *Cryptotympana*, *Tympanoterpes*, and *Selymbria*, and, in 1864, by *Proarna*. In 1862, Stål (Rio. Jan. Hem. p. 19) distributed the species of *Cicada* proper amongst the subgenera *Cicada*, *Taphura*, *Parnisa*, *Calyria*, and *Prunasis*. All of these were raised to the rank of genera in 1866 (Hem. Afric. iv, p. 8) and, excepting *Cicada*, were thrown into the *Tibicen* group. To the *Cicada* group were added *Henicopsaltria*, *Nosola*, and *Emathia*, in 1866; and to the *Tibicen* group, *Henicotettix* in 1858; *Pydna*, *Stagira*, *Callipsaltria*, and *Tympanistria*, in 1861; and *Rustia* and *Bæturia*, in 1866. In 1870, Stål still further divided the species of his restricted *Cicada* in establishing the subgenera *Chremistica*, *Macrotristia*, *Cicada*, and *Diceroprocta*. I doubt much whether any of those Indian species which still bear the generic name *Cicada* really belong to that genus: if they do, they belong to the subgenus *Cicada*, which has the sides of the thorax anteriorly without a lobe; the sides of the last dorsal segment in ♂ posteriorly unarmed, very often produced in an acute tooth in the middle; the sixth ventral segment in ♀ broadly, angularly sinuated at the apex; and the interior ulnar vein straight or but slightly curved. This question can only be settled by an examination of the types.

63. CICADA (?) FERRUGINEA, Olivier.

J. A. S. B. liii, (2), p. 230, No. 74.

Entirely ferruginous, clouded brown: tegmina and wings of a deep colour, the posterior margins light and transparent *(Olivier)*.

64. TIBICEN (?) AURATUS, Walker.

J. A. S. B. liii, (2), p. 230, no. 72.

♂. Body black, densely tawny pubescent, pale tawny beneath: a band in front of the head, three spots in the ocellar area, face and rostrum, tawny: disc of face, tip of rostrum which reaches the intermediate coxæ and the antennæ, black: anterior lobe of pronotum with the borders and a short stripe, behind which are two triangular spots resting on the hind border; posterior lobe and two stripes on the mesonotum amplified in the middle and its posterior margin, tawny: abdomen velvety black with patches of golden hairs: [tympana uncovered, tawny, rather large; opercula pale tawny, small, wide apart ?]: tip of abdomen tawny, with a horn of the same colour: legs yellow; femora striated black; tips of the tibiæ and of the feet, black; claws black, tawny at the base; fore-femora with three robust black teeth; fore-tibiæ mostly black: tegmina colourless, pale buff and marked with buff at the base; costal margin bright rosy red, darker towards the tips, black on the stigma; veins tawny, black towards the tips; first and second transverse veins and the longitudinal vein between them, clouded black: veins of the wings pale tawny with black tips and the tips of the flaps clouded brown. In the ♀ the abdomen is a little longer and more pointed than in the ♂.

Species of doubtful position.

Cicada rugipennis, Walker, Ins. Saund., p. 17 (1858).

♂. Luteous-testaceous, stout: pronotum much broader behind than in front, sides straight, sutures strongly marked: abdomen with a blackish band on the fore border of each segment: wings white, rather broad, very stout and rugulose: tegmina slightly rounded in front, costa and veins reddish, the latter black at the tips; 1-3 transverse veins and most part of the intermediate veins, clouded black: wings with a short angular band in front at two-thirds of the length. Body long, 29½; teg. 84 millims.

Reported from India.

Cicada delineata, Walker, Ins. Saund., p. 17 (1858).

♀. Black, testaceous beneath: ocellar space and two irregular stripes on the head, the frons, margin of pronotum, six irregular stripes on the mesonotum and a spot and dot on each side in front between the intermediate and exterior pair of stripes, a band on the posterior margin of each abdominal segment and the abdomen for the most part beneath, legs, and veins on the tegmina towards the base, testaceous: transverse streaks on the frons, six various stripes on the pronotum and the sutures in part, also three spots on each side, stripes on the femora and tibiæ and veins of the tegmina above the base, black: tegmina and wings vitreous. Body long, 21; teg., 63 millims.

Reported from India.

Cicada subvenosa, Walker, Ins. Saund., p. 18 (1858).

♂. Pale testaceous: greatest part of the vertex, 2-4 stripes on the pronotum, also a dilated spot by the border, four stripes on the mesonotum of which the middle pair are short and two dots behind these and a spot at the base of the abdomen, black: pronotum a little broader than the head with a brown spot on each side hindward; the outer pair of black spots on the mesonotum contain between them some forked testaceous lines: tegmina and wings vitreous, veins pale testaceous, the first and second veins of the tegmina slightly clouded brown. Body long, 14½; teg. 38 millims.

Reported from India.

Cicada strigosa, Walker, Ins. Saund., p. 19 (1858).

♂, ♀. Black: transverse lines on each side of the face, a stripe on the pronotum, the abdomen beneath more or less, greatest part of the femora, a band near the base on the tibiæ, testaceous: tegmina and wings vitreous, with a very oblique interrupted brown band which extends along the transverse veins; veins testaceous, black towards the tips: the basal area and the base of the sixth ulnar area, clouded brown and with a short brown band which extends across the tip of the front area; a brown mark at the tip of the first apical area: abdomen in ♂ with three stout spines at the tip. Body long, 14½; teg., 38 millims.

Reported from India.

Cicada virguncula, Walker, J. Linn. S. Zool. i, p. 84 (1856).

Green: head small: drums very small: abdomen luteous above at the base, hind borders of the segments, luteous: wings vitreous; costa and veins green. Body long, 13½; teg. 35—36 millims.

Reported from Singapore, Malacca.

Genus CICADATRA, Amyot.

A. S. E. F. (2 sér.) v, p. 152 (1847): Fieber, Rev. Mag. Zool. (3 sér.) ii, p. 338, t. 3, (1875).

In A. S. E. F. (4 sér.) i, p. 617 (1861), Stål unites *Tettigia* and *Cicadatra* and makes them subgenera of the united genus. Fieber (l. c.) keeps them separate and describes *Cicadatra* as having the anterior femora trispinose: pronotum trapezoidal: covering of the drums semi-oval or broadly triangular, concealing more or less the drums, and moreover a subulate projection or point: the genital sheath (*porte-pénis)* in the ♂ is corneous, elongate or linear and has at the tip a bundle of ribbon-shaped white or brownish appendages with numerous points: the two sectors spring each from one of the angles of the short basal cellule of the tegmina, the angles separated by a short, oblique, vein: rostrum reaching only the middle or the usually convex end of the mesosternum. In *Tettigia*, the anterior femora are bispinose: pronotum trapezoidally broadened backwards: the drums almost covered by a broad semioval plate: the genital sheath in ♂ is corneous and ends in two horns, incurved towards the base : the two sectors spring from the elongated basal cellule at a right angle, the exterior sector rising at the internal inferior angle, the other a little higher at the tip of the short, oblique, intermediate vein : the rostrum long, reaching the first ventral segment, basal joint prominulous, third joint about 3½ times longer than the second, clypeus long, triangular, acute, four-fifths of the length of the frons : space between the scrobe and the eye almost twice as large as the scrobe : mesosternum broadly triangular, convex with a short and weak apical groove : metasternum in the ♂, obtuse, quadrangular, free.

65. CICADATRA STRIATA, Walker.

J. A. S. B. liii, (2), 229 no. 71 : liv, (2), 116.

♀. Body tawny : head with a broad, slightly interrupted black band ; face convex, with a row of black bands on each side : rostrum tawny, piceous towards the tip, reaching the hind coxæ : pronotum partly black above, with a short, broad, yellow stripe in the middle : mesonotum mostly occupied by four very broad black stripes, the lateral much longer than the median pair and with two tawny streaks : abdomen mostly piceous above : legs tawny : first femora with three rather long teeth : tegmina and wings colourless, veins tawny, black towards the tips ; the first and second transverse veins clouded with brown : fore-flaps, tawny, tips of hind-flaps, brown. Body long, 16¾ : exp. teg. 44 millims.

66. CICADATRA XANTES, Walker.

J. A. S. B. liii, (2), p. 230, no. 75 ; liv, (2), p. 117.

♂. Body tawny : vertex with two very large black spots ; face red above with a piceous stripe in front : rostrum tawny, tip black, reaching the intermediate coxæ : antennæ tawny, piceous at the bases and tips : pronotum with a yellow stripe on each side of which there is a short, slightly curved stripe and a small spot on the hind border, piceous : mesonotum with four black obconical stripes, the middle pair rather less than half the length of the outer pair and so close together that they almost appear united ; behind them are two piceous spots which join the cross-ridge which is ferruginous and small : abdomen ferruginous with a piceous stripe which tapers from the base to a little beyond the middle and then disappears : drum-covers pale tawny, very small, not half covering the tympana which are ferruginous ; the opercula bright tawny, rather narrow, of moderate size, about one-third the length of the abdomen : legs tawny ; femora striated ferruginous ; tips of claws black fore tibiæ and feet ferruginous ; fore femora with two rather long ferruginous teeth : tegmina colourless, veins yellow, on the costal margin a black vein is enclosed between two yellow veins and extends to the pale yellow stigma : flaps with a tawny tinge at the base and along part of the middle vein.

67. CICADATRA QUADRIMACULA, Walker.

J. A. S. B. liii, (2), p. 233, no. 93 ; liv, (2), p. 117.

♂. Body bright tawny, scarcely pubescent : head, rostrum (base excepted), antennæ, black : pronotum with a slightly curved stripe on each side, two triangular spots on fore border, three small spots on hind border, and some indistinct marks on the disc, black : mesonotum with four very large black spots of which the outer pair are obconical, slightly oblique, widened to each other at the base, on the inner side slightly emarginate by a very slender short oblique tawny stripe, the third spot much shorter and apparently divided into two U-shaped spots, the fourth behind the third, quadrate, with a slender cone on its fore border : a large spot on each side at the base of the antennæ, a small one in front of the head and three along the hind border, and the base of the rostrum, tawny : abdomen black above, posterior dorsal margins of the segments with an interurrupted reddish band, a broad pale tawny band near the tip, horn pale tawny ; beneath piceous, posterior margins of the ventral segments, ferruginous, tip pale tawny : drum-covers very small, pale tawny, with blackish discs partly covering the tympana, which are greyish ; opercula bright tawny, small, far apart : legs tawny : coxæ, posterior femora and last tibiæ striped black ; claws ferruginous ; first femora black with a tawny spot near the tip and with three robust black teeth ; first tibiæ black with a slender tawny band near the base, middle pair black ; first and middle feet, piceous ferruginous at the base, last pair tawny with piceous tips : tegmina whitish, pale tawny and marked with black at the base, costal margin bright tawny, stigma pale brown, veins pale tawny, black towards the tips first and second transverse veins and the space between them and the costal margin clouded very dark brown ; fore-flaps pale tawny : wings with the first and second transverse veins and the space between them clouded very dark brown, flaps white at the base and along some part of the hind border.

Genus CRYPTOTYMPANA, Stål.

J. A. S. B. liii, (2), p. 230.

Head very broad, about as broad as the thorax ; frons occupying about a third part of the breadth of the face : thorax very slightly amplified backwards from the apex; the lateral margins dilated, straight, or slightly sinuated; anterior angles distinct; posterior limbus broad: scutellum posteriorly depressed, slightly sinuate at the apex: tegmina with eight apical areas, basal cell sending out two veins which are rather broadly distant: wings with six apical areas; abdomen obconical, tympana entirely hidden above by the very large lobe of the dorsal segment which is produced forwards: opercula large, flattish, contiguous inwards or slightly valvate: metasternum furnished with a stout process which is curvedly produced from the base backwards: first pair of femora beneath with two large spines and near the apex with an obsolete, obtuse, small tooth (*Stål.*)

68. CRYPTOTYMPANA RECTA, Walker.

J. A. S. B. liii, (2), p. 230, no. 77.

♀. Body black, short, broad, tawny pubescent in parts: rostrum black, tawny at the base, reaching the last coxæ: antennæ black: posterior lobe of the pronotum with two large tawny spots; the mesonotum with two small tawny spots near the middle of its posterior margin: opercula tawny, very small, wide apart: legs dark tawny; femora, especially the first and intermediate pairs, striped black; tips of the tibiæ, feet, and fore-tibiæ, black; first femora with three black teeth of which two are long and one is very small: tegmina colourless, green along the costal margin for half its length, dark brown thence to the tips, black towards the base, to this colour succeeds a small space having an opaline lustre; veins tawny, black towards the tips; the first and second transverse veins and the adjoining longitudinal veins are clouded dark brown; flaps black towards the base.

69. CRYPTOTYMPANA VICINA, Signoret.

J. A. S. B. liii (2), p. 230, no. 78: includes *Fidicina bicolor*, Walker, List Hom. B. M. iv, p. 1121 (1858), from Java.

Much smaller than *C. acuta*, Signoret, from which it differs only in the absence of patches on the pronotum and in the complete transparency of the wings in the external portion: the opercula are proportionately less elongate, but of the same form (♂).

70. CRYPTOTYMPANA IMMACULATA, Olivier.

J. A. S. B. liii, (2), p. 231, no. 79.

Black: wings, hyaline, spotless: abdomen black: opercula reddish: two spines on the first pair of femora, acute, larger than usual (*Olivier*). Head and thorax blackish brown, abdomen black; three red ocelli on the head; opercula orange red: first pair of femora with two robust spines: tegmina and wings hyaline, immaculate, margin of the brown colour of the body beneath. Differs from *C. intermedia*, Signoret, in having the tegmina and wings entirely transparent, the opercula smaller though of the same colour, and the femoral spines apparently more robust. Body long, 50: exp. teg. 112 millims.

71. CRYPTOTYMPANA INTERMEDIA, Signoret.

J. A. S. B. liii (2), p. 231, no. 80.

Differs from *C. atrata*, Fabr., in the absence of patches on the pronotum and scutellum, whilst those on the head are larger: the brown basal patch on the tegmina is not so large and does not extend beyond the basal cell: opercula are altogether yellow and are larger, elongate, flattened, and with a rim: abdomen reddish yellow with a blackish band on each segment; sides brown. From Tenasserim (*Walker*); China (*Signoret*, B. S. E. F. (6 sér.) i, p. xli, 1881); Java (*Sign.*).

72. CRYPTOTYMPANA ATRATA, Fabricius.

Tettigonia atrata, Fabr., Syst. Ent. p. 681 (1775); Spec. Ins. ii, p. 321 (1781); Mant. Ins. ii, p. 267 (1787); Ent. Syst. iv, p. 24 (1794); Syst. Rhyng. p. 42 (1803).

Tettigonia pustulata, Fabr., Ent. Syst. iv, p. 20 (1794); Syst. Rhyng., p. 37 (1803).

Cicada nigra, Olivier, Enc. Méth. v, p. 750, t. iii, f. 5 (1790): Stoll, Cig., p. 84; t. 22, f., 118 (1788), La Cigale Chinoise noire.

Cicada atrata, Germar, Thon's Archiv. ii (2), p. 55 (1830); Silb., Rev. Ent. ii, p. 68 (1834).

Cicada atra, Signoret, Rev. Mag. Zool., p. 406, t. 10, f. 1.

Fidicina atrata, Walker, pt., List Hom. B. M. p. 89 (1850).

Cryptotympana nigra, Stål, Hem. Fabr. ii, p. 6 (1868); Ofvers. K. V.-A. Förh., p. 714 (1870).

Cryptotympana atrata, Stål, A. S. E. F. (4 sér.) i, p. 613 (1861).

Entirely dull black; the margin of the abdomen, especially of the last segment, testaceous: tegmina and wings whitish, black at the base, veins testaceous (*Fabr.*). This description is copied through all Fabricius' works and the reason for Stål giving in his later writings precedence to Olivier's name is not understood.

Black, varied with reddish yellow; tegmina and wings hyaline varied with brown: head with a reddish longitudinal patch in the middle of the frons, ending below near the eyes and another transverse patch; pronotum with a patch on each side on the posterior margin, 2-4 on the scutellum, one at each angle: tegmina and wings with a broad opaque, basal, brownish patch occupying the basal cell of the tegmina, which are in the opaque portion veined yellowish, and also in a part of the transparent portion, but becoming obscure and black towards the apical anastomoses: abdomen black, margined yellow: opercula moderate, tumid, rounded, blackish-brown bordered with yellow: feet black, varied with yellow. Long. 47: exp. teg. 134 millims.

Reported from China, Java, but likely to be found in India.

73. CRYPTOTYMPANA ACUTA, Signoret.

Cicada acuta, Sign., Rev. Mag. Zool. p. 409, t. 10, f. 3, 3 A (1849).
Fidicina acuta, Walker, List Hom. B. M. ii, p. 81 (1850).
Fidicina nivifera, Walker, l. c. p. 80 (1850).
Cryptotympana acuta, Stål, A. S. E. F. (4 sér.) i, p. 613 (1861); Ofvers. K. V.-A. Förh. p. 483 (1862); p. 714 (1870).

Black: two reddish brown patches on the pronotum and a yellow band on the posterior margin: mesonotum with six stripes, of which the two median are small: scutellum reddish: metanotum reddish on each side with two median patches: tegmina and wings brownish at the base, the external cellules and the two first anastomoses only being slightly smoky: abdomen with a large farinose patch on each side of the first three segments, which is only feebly indicated on the fourth, beneath black varied with red: opercula large, elongate, ending in a point and sinuate on the margins, entirely yellow: feet black, varied with yellow. Body long, 42: exp. teg. 130 millims.

Reported from Java, Philippines, likely to be found in India.

74. CRYPTOTYMPANA CORVUS, Walker.

J. A. S. B. liii, (2) p. 231, no. 82: liv (2), p. 117.

♀. Body black, short, broad, adorned here and there with patches of bright tawny down: a tawny spot on the face: rostrum and antennæ, black, the former reaching the hind coxæ: abdomen with a tawny spot on each side of the tip beneath: legs black; femora striped tawny, hind tibiæ tawny, black at the base and at the tips: first femora with two long, black teeth: wings nearly colourless, with a slight pale brown tinge at the tips, very dark brown towards the base, costal margin dark brown, striped with green, veins black, greenish towards the base. Body, long, 36: exp. teg. 113 millims.

75. CRYPTOTYMPANA BUBO, Walker.

J. A. S. B. liii, (2), p. 231, no. 81: liv (2), p. 117.

♂. Body black, short, broad, shining, partly clothed with tawny down which forms patches on the thorax: head with five tawny spots in front, the largest on the vertex; rostrum and antennæ, black: eyes prominulous: the pronotum with two dark tawny spots near the hind border, posterior margin of posterior lobe dark tawny, and the mesonotum on each side with two tawny spots: abdomen obconical, a little longer than the thorax, with a dark tawny stripe along each side beneath: drums black, rather large; opercula large, black, nearly half the length of the abdomen, irregularly triangular, tawny on the outer sides and at the tips, which are narrow and pointed: legs black; femora tawny beneath except at the base and tips; a slender tawny band near the base of each middle tibia; hind tibiæ tawny, black at the base and at the tips; a broad tawny band on each hind foot: first femora strongly bidentate: tegmina dark brown for half the length from the base, slightly tinged with brown thence to the tips, adorned at the base of each tegmen with a tawny spot, beyond which is a tawny stripe extending nearly half the length of the fore border; veins tawny for half the length from the base, black from thence to the tips. ♀ has the abdomen much longer than the thorax. Body long 36—40; exp. teg. 117—118 millims.

76. CRYPTOTYMPANA (?) INVARIANS, Walker.

Fidicina invarians, Walker, Ins. Saund. Hom. p. 11 (1858).

♀. Black: wings vitreous, black at the base; veins reddish, partly black along the costa: tegmina with the first and second transverse veins black, very oblique, first very slightly clouded, the third and fourth undulating (*Walker*). Body long 37½; teg., 109 millims.

Reported from India.

77. CRYPTOTYMPANA FACIALIS, Walker.

Cicada facialis, Walker, List Hom. B. M. Suppt. p. 30 (1858).

♂. Black, slightly clothed with pale golden pubescence on the borders of the segments: head with a luteous spot on each side in front between the eyes; face with a luteous stripe, its lateral margins testaceous: abdomen with 2-3 slight tawny bands in the middle beneath: legs partly tawny, tegmina and wings vitreous, black at the base; veins tawny, black at the tips, first and second transverse veins slightly clouded with black (*Walker*). Body long 37—38; exp. teg. 100—101 millims.

Reported from Siam.

78. CRYPTOTYMPANA FUMIPENNIS, Walker.

Fidicina fumipennis, Walker, List Hom. B. M. Suppt. p. 17 (1858).

♂. Black: a streak on the head on each side before and behind, and an undulating streak on each side of the pronotum, ferruginous:

head here and there tawny pubescent: pronotum with a median stripe and hind border, tawny, the latter edged black: mesonotum with four tawny stripes, inner pair short, outer pair partly ferruginous: abdomen with a broad tawny stripe on each side at the tip: opercula acute, slightly falcate, extending to half the length of the abdomen, broadly tawny along the exterior side: legs partly tawny: tegmina and wings nearly vitreous in the middle, green towards the base, brown about the tips and along the external margin; veins green, black towards the tips; first and second transverse veins on the tegmina clouded dark brown (*Walker*). Body long, 22: exp. teg. 121—122 millims.

Reported from Siam.

Genus TIBICEN, Latreille, Stål.

J. A. S. B. liii, (2), p. 231.

Body oblong: head varying in breadth, rarely broader than the anterior margin of the thorax; frons slightly or moderately convex, occupying not more than half of the breadth of the face, furnished with a longitudinal groove: clypeus subacuminated at the apex or slightly truncated: rostrum short or moderate: ocelli remote from the base of the head: sides of thorax rarely a little dilated, very often convex, amplified posteriorly: costal margin of the tegmina not or towards the base only a little dilated, ulnar veins very often entirely distant, never contiguous; eight apical areas, first apical area extended farther forwards than the second: tympana entirely visible: anterior margin of the posterior part of the first dorsal segment of the abdomen not amplified in a lobe, straight: last ventral segment in ♀ deeply and broadly emarginated: opercula small or moderate, not valvate, rarely contiguous: first pair of femora spinose beneath (*Stål*). In Hem. Afric. iv, p. 26 (1866), Stål distributes the African species of this genus amongst the subgenera, *Abricta*, *Abroma*, *Quintilia*, and *Epora*, to which, in 1870, he added *Nelcynda*. The Indian species *T. brunneus*, Fabr., belongs to the subgenus *Abricta* and *T. apicalis*, Germar, to *Abroma*.

79. TIBICEN AURENGZEBE, Distant.

J. A. S. B. liii, (2), p. 231, no. 83.

♂. Body above dull ochraceous. Head with the front margined anteriorly by two narrow black striæ; ocelli narrowly margined with black; eyes pale ochraceous: pronotum with a central longitudinal sulcation, bordered with a small fuscous spot on each side at the anterior margin, starting from a wide, transverse, and somewhat raised base, on the middle of which is a fuscous spot; oblique striæ narrowly fuscous;

lateral anterior and posterior margins much paler: mesonotum with two short obconical median fuscous spots and a large sublateral and somewhat broken fascia of the same colour on each side: abdomen with the posterior segmental margins narrowly and obscurely paler. Body beneath concolorous; middle of the face, metasternum, disc and apex of the abdomen, fuscous: legs concolorous, femora streaked with fuscous; bases and apices of tibiæ, and apical points of tarsi, also fuscous. Tegmina and wings pale hyaline and talc-like; tegmina with costal and basal half of venation ochraceous, remainder fuscous; transverse veins at the bases of the second and third apical areas infuscated. Width of head, between the outer margins of the eyes, rather less than that of the pronotum at the base; pronotum a little more than twice as broad as long; face with the base much elevated, somewhat narrowing to the apex, distinctly longitudinally sulcated, and strongly transversely striate: rostrum about reaching the posterior coxæ, with the apex pitchy; opercula slender, curved inwardly, but not meeting at the base or apex *(Distant)*. Long. 18: exp. tegm. 48 millims.

80. TIBICEN APICALIS, Germar.

J. A. S. B. liii (2), p. 231 no. 84: liv (2), p. 117.

♀. Head somewhat broader than the base of the thorax, black, frons tumid, basal spot ferruginous: thorax anteriorly much narrower than the head, sides obtuse, slightly converging backwards, posteriorly abruptly amplified, posterior limbus narrow; upper apical segment in ♀ with two black stripes. Very near *T. brunneus*, Fabr., but differs in being smaller, head broader, frons much more tumid, sides of thorax slightly converging backwards, and in the markings. In the form and structure of the tegmina, abdomen, and spine of posterior trochanters, it agrees with *T. brunneus (Stål)*.

81. TIBICEN SUBVITTA, Walker.

J. A. S. B. liii (2), p. 230, nos. 71, 73: liv (2), p. 117.

♂. Body black, scarcely pubescent: a small tawny spot on the vertex between the ocelli and the hind border: rostrum and antennæ black, the former reaching the intermediate coxæ: pronotum with a slender tawny stripe extending from the fore to the hind border: abdomen obconical, piceous, tawny at the tip, beneath ferruginous and tawny towards the tip; [drums large, pale brown and opercula tawny?]: legs black; femora striped red; claws and hind feet tawny; femora with three tawny teeth, of which one is very long and two are of moderate size; hind tibiæ tawny towards the tips: tegmina and wings colourless, whitish and tinged with red at the base, veins pale tawny, black towards the tips: basal cell and adjoining veins clouded brown: tegmina with two oblique dark brown bands, the first interrupted, the second occupying the transverse veins, but not reaching the hind border; a small dark brown spot on the tips of the fore border; a row of pale brown spots occupies the tips of the veins of the apical areas; fore membranes whitish: wings with a broad, interrupted oblique brown band which communicates here and there with the base along the borders of the veins; flaps colourless, brown along the fore border and towards the base, where they are whitish; veins tawny; black towards the tips.

82. TIBICEN PUSILLUS, Fabricius.

Tettigonia pusilla, Fabr., Syst. Rhyng. p. 44 (1803).
Cicada pusilla, Walker, List Hom. B. M. i, p. 229 (1850).

Small: thorax flavescent; the anterior lobe, a pale dorsal line, and small impressed lines, black, the posterior lobe with four dull black spots at the base, the lateral ones largest: abdomen flavescent, segments black at the base: wings hyaline, costa flavescent: feet flavescent (*Fabr.*).

Reported from Amboina, India.

83. TIBICEN (?) NANA, Walker.

Cicada nana, Walker, List Hom. B. M. i, p. 202 (1850).

♂. Body tawny: vertex ferruginous, piceous on each side; face with two piceous stripes in front: rostrum dark tawny, tip black, reaching the intermediate coxæ: antennæ tawny: pronotum ferruginous with a very large triangular black mark on each side: opercula of moderate size, rather less than one-third of the length of the abdomen: legs tawny; claws black; femora with three tawny teeth: tegmina and wings colourless; veins tawny, black along the hind borders of the tegmina. Long, 12½; exp. teg. 29—30 millims.

Reported from China.

Genus MOGANNIA, Amyot & Serville.

J. A. S. B. liii, p. 232.

Body elongate: head small; frons conically produced: eyes small scarcely prominulous: tegmina large and broad, their basal half coriaceous, more or less transparent, up to a transverse elevated line beyond which, and the wings, hyaline; costal margin of the tegmina somewhat straight before the middle, the second apical area extended forwards to a less distance than the first: abdomen stout, inflated, broader than the thorax, a little compressed on its upper surface on both sides, so as to form a kind of ridge (*A. & S., Stål*).

84. MOGANNIA CONICA, Germar.

J. A. S. B. liii, (2), p. 232, nos. 85 *(M. illustrata)*, 86 *(M. recta)*; liv, (2), p. 117: includes also *Cephaloxys hemelytra*, Signoret, A. S. E. F. (2 sér.) v, p. 295; *Mogannia ignifera*, Walker, List Hom. B. M. i, p. 249 (1850), from Java; and *Mogannia avicula*, Walker, l. c. p. 249 (1850), from Java and the Philippines.

♂. Ferruginous: abdomen with a red band on the posterior margin of each segment: tegmina and wings vitreous, red at the base, veins tawny; the tegmina tawny for more than one-third of the length from the base and having a brown upright band dividing the tawny from the vitreous part; the wings brown along the basal part of the hind border (*M. recta*, Walker).

85. MOGANNIA OBLIQUA, Walker.

J. A. S. B. liii, (2), p. 232, no. 87.

♀. Green, mostly reddish beneath: head black along the hind border: pronotum with some testaceous marks and a black stripe dilated backwards: mesonotum with some testaceous marks and a black stripe dilated before and behind: abdomen reddish with a spot on each side near the base and a short band hindward of pale sericeous pile, two green bands near the tip: legs piceous; posterior tibiæ and tarsi pale green: tegmina and wings vitreous, red at the base, veins green black towards the tips; the tegmina have a red costa, a brown band extending from the tip of the front areolet obliquely to the hind border, whence it is continued obliquely towards the base of the wing (*Walker*).

86. MOGANNIA VENUSTISSIMA, Stål.

J. A. S. B. liii, (2), p. 232, no. 88.

♂, ♀. Cærulean or brassy black, sordid flavescent-sericeous: tegmina before the middle and the wings sordid hyaline; the tegmina veined sordid straw-colour, before the middle black, at the base pale sanguineous; the wings veined fuscous, sanguineous at the base.

Var. *a*. Basal spot on frons and oblong median spot on the thorax, sanguineous.

Var. *b*. Entire frons, median streak on the thorax contracted in the middle, also veins and band on the black part of the tegmina, weak sanguineous-flavescent; abdomen varying into ferruginous (*Stål*).

87. MOGANNIA FUNEBRIS, Stål.

J. A. S. B. liii, (2), p. 232, no. 89.

♀. Aenescent-black, fuscous, pilosulous : tegmina and wings vitreous, the former black before the middle, basal area and a band at the apex of the black part, sordid lutescent (*Stål*).

88. MOGANNIA INDICANS, Walker.

J. A. S. B. liii, (2), p. 232, no. 90.

♂. Body bright or very dark red : rostrum black reaching the intermediate coxæ : antennæ yellow, black at the base : a very large dark ferruginous spot on each side of the fore-chest : mesonotum with a broad, obconical, oblique, black stripe on each side, the margins of which are also black : pectus black : abdomen blackish towards the base, tip with a black horn : legs black, pilose : coxæ and posterior femora marked with red : tegmina and wings colourless, tawny at the base ; the tegmina with a broad brown band which includes a very irregular yellow band ; veins yellow, tawny at the base. ♀. Body nearly all black ; a colourless spot on the base of the brown band of the tegmina (*Walker*).

89. MOGANNIA (?) LOCUSTA, Walker.

J. A. S. B. liii, (2), p. 233, no. 91.

♀. Body ferruginous, pale tawny beneath : two small black spots between the ocelli : rostrum pale tawny, tip piceous, reaching the intermediate coxæ : antennæ tawny : anterior lobe of the pronotum with two slender black stripes which slightly converge from the fore border and then slightly diverging include a nearly circular space and are united on the hind border, a small black spot on each side in front ; posterior lobe tawny : mesonotum with three slender black stripes, the side pair slightly converging towards the tip of the middle one, sides and hind border tawny, pale yellow sericeous : abdomen pale tawny, with a very broad dorsal ferruginous stripe extending from the base to the narrow part, a row of small piceous spots along each side ; last segment piceous above at the base, horn tawny, rather long ; sheaths pale tawny, piceous and pilose towards the tips, and extending some distance beyond the tip of the abdomen ; oviduct ferruginous, black and serrated at the tip : legs pale tawny ; first femora with three tawny teeth, of which one is very small : tegmina colourless, basal cell, costal margin, and veins pale tawny ; wings colourless, in both fore membranes pale buff, flaps pale buff at the base and for a space along the hind border.

90. MOGANNIA (?) LACTEIPENNIS, Walker.

J. A. S. B. liii, (2), p. 233, no. 92.

♂. Body luteous, palely pilose : head black, a small tawny spot at the base of each antenna ; a large tawny spot on each side of the face : rostrum black, tawny at the base ; antennæ black : a black band along the fore border of the posterior lobe of the pronotum : mesonotum with four black obconical marks, median pair not more than half the length of the lateral pair, between the former there is a black stripe increasing in breadth from the fore border to the middle where it ceases : abdomen black, posterior dorsal margins of segments tawny, a tawny spot on each side near the tip which is tawny : drums tawny, small, open, furrows hoary ; opercula very small : legs luteous, a piceous spot at the tip of each tibia ; tips of claws, black ; first femora with two stout teeth which are partly black at the base : tegmina and wings white, opaque, luteous at the base ; veins black, tawny towards the base and near the stigma.

91. MOGANNIA HEBES, Walker.

Cephaloxys hebes, Walker, List Hom. B. M. Suppt. p. 38 (1858).

♂. Testaceous : pronotum blackish with a stripe and the border, testaceous ; mesonotum with four blackish obconical stripes, the inner pair very short : two black spots on each of the second and third segments of the abdomen : opercula oblique, elongate-conical : tegmina and wings vitreous, veins pale green, black at the tips. Body long, 16¼ : exp. teg. 42 millims.

Reported from N. China.

92. MOGANNIA NASALIS, White.

Mogannia nasalis, White, A. M. N. H. xiv, p. 426 (1844) ; Walker, List Hom. B. M. i, p. 248 (1850).

Head, thorax, and body finely yellowish-brown sericeous, especially above : near the base of the tegmina is a broad transverse band (widest interiorly) of a glossy yellowish hue, darker on the borders, veins greenish, base and tip quite clear : wings with the veins obscure, inner edge reddish : pronotum with two large rounded spots, one on each side ; the margin and a line through each spot, deeply impressed : hind tibiæ hairy behind with three longish spines on the apical half (*White*). Long, 22 millims.

Reported from Hong-kong.

93. MOGANNIA CHINENSIS, Stål.

Mogannia chinensis, Stål, Ofvers. K. V.-A. Förh., p. 155 (1865).

♂. Black, remotely golden-yellow sericeous: a streak and the apical part of the dorsum of the abdomen, densely sericeous: the tegmina and wings vitreous; veins fuscous; a broad, oblique, sordid stramineous band on the tegmina before the middle, anteriorly and posteriorly the band often interrupted and with a fuscous end: tibiæ and the posterior tarsi yellow-whitish; intermediate tibiæ at the base and apex and the last pair at the base, black: venter ferruginous. Very like *M. nasalis*, White, differs in the larger size, the colour of the posterior tibiæ, and in the lateral processes of the upper anal segment in ♂ being longer (*Stål*). Long, 18; exp. teg. 40 millims.

Reported from N. China.

94. COSMOSCARTA SIAMENSIS, Butler.

Cosmoscarta siamensis, Butler, Cist. Ent. i, p. 245, t. viii, f. 1 (1874); J. A. S. B. iv (2), p. 23 (1885).

Allied to *C. tricolor*, St. Farg., but in the form of the thorax more like *C. divisa*, Walker. Head and thorax, basi-costal third of corium, and basal part of the clavus reddish-testaceous: wings pale fuscous, the basi-costal veins and the base, reddish: abdomen above and beneath blue-black: pectus and legs, piceous; hind tibiæ with a strong spine. A variety has the basal third of the tegmina reddish-testaceous (*Butler*). Long, 18; exp. teg. 42 millims.

Reported from Cambodia.

95. COSMOSCARTA RUGULOSA, Walker.

Cercopis rugulosa, Walker, J. Linn. S. Zool. i, p. 95 (1856), p. 105 (1857).
Cosmoscarta rugulosa, Butler, Cist. Ent. i, p. 249 (1874).

Black, shining; ferruginous beneath: abdominal margins and the legs red: a blackish band on each femur: tegmina rugulose (*Walker*). Long, 10½; teg. 29½ millims.

Reported from Singapore, Borneo.

96. COSMOSCARTA MALAYA, Stål.

Cercopis malaya, Stål, Ofvers. K. V.-A. Förh., p. 147 (1865).

♂. Black-violaceous, sparingly puberulous, tegmina and feet blackish: two smallish spots on the corium behind the middle, one placed at the costa, the other obliquely behind it, also two very minute obsolete spots of which one is at the apex of the clavus and the other behind the middle of the costal margin, red. Thorax fairly densely and finely punctured, truncated at the base before the scutellum, margins (anterior excepted) reflexed, lateral angles obtusely rounded : scutellum impressed before the middle : tegmina very densely punctulate, scarcely narrowed towards the apex : mesostethium rather distinctly bituberculate, posterior margin not elevated before the coxæ (*Stål*). Long, 8 ; exp. teg., 23 millims.

Reported from Malacca.

97. COSMOSCARTA HEROS, Fabricius.

Cercopis heros, Fabr., Syst. Rhyng. p. 89 (1803) : Stoll, Cig. p. 104, t. 27, f. 149. (1788) : Stål, Ofvers. K. V.-A. Förh. p. 492 (1862) : Walker, List Hom. B. M. iii, p. 654 (1851).

Cercopis abdominalis, Westwood in Donovan's Ins. China, p. 39, t. 16, f. 5 (1843) : Walker, l. c. p. 654 (1851) : J. Linn. S. Zool. x, p. 286 (1867).

Cosmoscarta heros, Stål, Hem. Fabr. ii, p. 11 (1869) ; Butler, Cist. Ent., i, p.2 54 (1874).

♂, ♀. Black, shining : head very obtuse and almost globose : thorax gibbous, dull black, spotless : tegmina dull black, the base and a median band, orange-fulvous : abdomen red (*Fabr.*). Long with teg., 16 ; breadth of thorax, $6\frac{2}{3}$ millims.

Reported from Hong-Kong.

98. COSMOSCARTA DISCREPANS, Walker.

Cercopis discrepans, Walker, J. Linn. S. Zool. i, p. 95 (1856).

Blackish-purple, black beneath : tegmina black with an elongated red spot which is contracted in the middle and occasionally interrupted (*Walker*). Long, 6—$7\frac{1}{2}$; teg. 17—19 millims.

Reported from Singapore.

99. COSMOSCARTA UNIFASCIA, Walker.

Cercopis unifascia, Walker, J. Linn. S. Zool. i, p. 95 (1856).

Red : thorax dilated on each side : disc of the pectus black : tegmina with a black band across the middle : wings hyaline (*Walker*). Long, $12\frac{1}{2}$; teg. 25 millims.

Reported from Singapore.

100. COSMOSCARTA FULVICEPS, Dallas.

Cercopis fulviceps, Dallas, Trans. Ent. Soc. (n. s.) i, p. 10 (1850).

. Head and thorax bright orange, shining : tegmina reddish black, somewhat obscure, outer margins pitchy red : wings brownish ;

abdomen beneath black, shining; pectus, legs, and rostrum pitchy. Long, 22 millims.

Reported from Sikkim.

101. Cosmoscarta dimidiata, Dallas.

Cercopis dimidiata, Dallas, Trans. Ent. Soc. (n. s.) i, p. 11 (1850).

♀. Head black; eyes pale brown, ocelli yellowish-white: thorax very thickly and finely punctured, with its posterior half and a transverse quadrangular patch on the anterior margin black; the remainder bright red; scutellum black: tegmina bright red, with three broad irregular black transverse bands, the first of which rises at the apex of the scutellum, the second a little behind the middle, and the third forms a broad black margin around the apex: body beneath black, shining; legs and rostrum pitchy (*Dallas*). Long 15 millims.

Reported from Sikkim.

To the above may be added :—

C. pulchella, Butler, Cist. Ent. i, p. 254 (1874). Laos.
C. exultans, Walker, List Hom. B. M. Suppt. p. 171 (1858). N. China.
C. bimacula, Walker, l. c. iii, p. 656 (1851). China.
C. rotundata, Walker, l. c., Suppt. p. 174 (1858). Laos.
C. pellucida, Butler, Cist. Ent. i, p. 262 (1874). Laos.
C. Distanti, Butler, P. Z. S. p. 672 (1874). Penang.

102. Phymatostetha pudica, Walker.

J. A. S. B. liv (2), p. 15, (1885).

Tawny, black beneath: pronotum with a black mark in front, divided by a testaceous stripe and having on each side of it a testaceous spot; scutellum black with a testaceous stripe abdomen cupreous-black, testaceous at the base and with a row of testaceous spots on each side beneath: legs testaceous, tips of femora, black; tibiæ black with a testaceous band near the tip: tegmina brown with a testaceous undulating basal subcostal streak and with two testaceous bands which have black borders in front; the first band at one-third of the length, composed of three spots, the second band at two-thirds of the length, entire, attenuated before the middle; tips testaceous: wings pale brown, rosy at the base (*Walker*). Body long, 15—16; teg. 35—36 millims.

Reported from Silhat.

To this add the following :—

P. semele, Stål, Ofvers. K. V.-A. Förh. p. 151 (1865). Malacca, Laos.
P. triseriata, Butler, Cist. Ent. i, p. 267 (1874). Laos.
P. dislocata, Walker, J. Linn. S. Zool. i, p. 95 (1856). Malacca.

P. borneensis, Butler, l. c. p. 268 (1874). Malacca, Ligor, Borneo.
P. nympha, Stål, l. c. p. 150 (1865). Malacca.
Colsa costæstriga, Walker, l. c. p. 96, t. iv, f. i (1856). Malacca.

103. PTYELUS (?) INTEGRATUS, Walker.

Ptyelus integratus, Walker, Ins. Saund. Hom. p. 94 (1858).

Dark testaceous : head with a broad stripe beneath, abdomen in the middle, coxæ, streaks on femora and hind tibiæ, blackish : tegmina testaceous slightly darker towards the base ; wings vitreous (*Walker*). Body long, 7¼ ; teg. 16—17 millims.

Reported from India.

To this add the following :—

? *P. bipars*, Walker, J. Linn. S. Zool. i, p. 96 (1856). Singapore.
? *P. immutatus*, Walker, l. c., p. 96 (1856). Singapore.

Add the following to the genus CLOVIA.

C. multilineata, *Ptyelus id.*, Stål, Ofvers. K. V.-A. Förh., p. 154 (1865). N. China.

C. malaya, *Ptyelus id.*, Stål, l. c. p. 153 (1865). Ligor, Malacca, China.

C. punctum, Walker, J. A. S. B. liv (2), p. 115 includes apparently *Ptyelus orientalis*, Stål, Freg. Eug. Resa, Hem., p. 287 (1859).

Add to the genus MACHÆROTA.

M. punctato-nervosa, Signoret, A. S. E. F. (5 sér.) ix, p. xlix (1879). China.

104. MEMBRACIS FUSCATA, Fabricius.

J. A. S. B. liv, (2), p. 79, no. 5.

Thorax foliaceous, rounded, fuscous ; with a slender streak before the anterior margin and a broader band before the apex, white : apex acute, black : tegmina fuscous (*Fabr.*).

105. LEPTOBELUS SCUTELLARIS, Fabricius.

J. A. S. B. liv, (2), p. 83, no. 12.

Head black : thorax with two, flat, robust, acute horns, produced posteriorly, subulate, entirely black with a broad snow-white, posterior band : wings deflexed, fuscous : costa a little white at the base : body fuscous (*Fabr.*).

106. CENTROTYPUS ONERATUS, Walker.

Centrotus oneratus, Walker, Ins. Saund. Hom. p. 78 (1858).

Tawny : pronotum pubescent, moderately high, minutely punctured ; lateral horns lanceolate, very broad, rather flat, directly diverging, obliquely ascending, with a slight ridge, near the hind side of each; posterior horn ridged, straight, very slender, acute at the tip, extending a little beyond the abdomen: abdomen greyish ferruginous with black points, except along the hind borders of the segments: legs tawny: tegmina tinged slightly testaceous, veins testaceous; wings vitreous, veins black (*Walker*). Body long 4¼; teg. 10½ millims.

Reported from India.

To this add :—

Centrotypus longicornis, Vuillefroy, A. S. E. F. (4 sér.) iv, p. 142, t. 1, f. 8 (1864). Malacca.

107. CENTROTUS (?) FLEXICORNE, Walker.

Centrotus flexicorne, Walker, Ins. Saund. Hom. p. 78 (1858).

Black: pronotum pubescent, moderately high, very slightly ridged: lateral horns long, acute, diverging, obliquely ascending, slightly inclined backward, much curved, with a ridge near the hind border; posterior horn slender, ridged: femora black: tegmina tinged slightly lurid, tawny at the base, costa black towards the tip, veins testaceous; wings vitreous (*Walker*). Body long, 6¼; teg. 12½ millims.

Reported from N. India.

108. CENTROTUS (?) OBLIQUUS, Walker.

Centrotus obliquus, Walker, Ins. Saund. Hom. p. 79 (1858).

Ferruginous very pubescent: pronotum rather high, somewhat scabrous, slightly ridged: lateral horns horizontal, moderately long, diverging, very slightly curved backward; posterior horn ridged, very slender, black except towards the base which is much above the abdomen, contiguous to the abdomen and hardly extending beyond it at the tip: legs tawny, femora black: tegmina tawny (*Walker*). Body long, 2¼; teg. 10½ millims.

Reported from India.

109. CENTROTUS (?) CONGESTUS, Walker.

Centrotus congestus, Walker, Ins. Saund. Hom. p. 79 (1858).

Black, stout, short: pronotum pubescent, rather high, flat above: lateral horns stout, elongate-conical, directly diverging, obliquely ascending; posterior horn ridged, lanceolate, reaching almost to two-thirds the length of the abdomen: legs tawny; femora black: tegmina tinged slightly grey, a brown mark at the tip of the costa, veins tawny (*Walker*). Body long, 3½: teg., 7¼ millims.

Reported from India. This is entirely different from the species described by Walker under the same name in J. L. S. Zool. x, p. 187 (1867) from Sula.

110. CENTROTUS (?) GIBBOSULUS, Walker.

Centrotus gibbosulus, Walker, Ins. Saund. Hom. p. 80 (1858).

Ferruginous, stout, short : head and pronotum pubescent, the latter oblique above the head : lateral horns conical, diverging, extremely short, hardly ascending and curved backwards; posterior horn ridged, lanceolate, black towards the tip, reaching to three-fourths of the length of the abdomen which is black : legs tawny, femora black, tegmina hardly tinged, brown at the base, veins tawny (*Walker*). Body, long 3¼ ; teg., 6½ millims.

Reported from India. This species is entirely distinct from the species described under the same name by Walker in J. L. S. Zool. x, p. 187 (1867) and which should be renamed *C. walkeri*.

To these add :—

? *Centrotus laminifer*, Walker, J. Linn. S. Zool. i, p. 93 (1856). Singapore.
? *C. caliginosus*, Walker, l. c. p. 93. Malacca.
? *C. semivitreus*, Walker, l. c. p. 94. Singapore.
? *C. semifascia*, Walker, l. c. p. 94. Malacca.
? *Micreune formidanda*, Walker, l. c. p. 94. Singapore.
Sipylus crassulus, *Centrotus id.*, Stål. Freg. Eug. Resa, p. 285 (1859). Malacca.
Tricentrus fairmairei, *Centrotus id.*, Stål, l. c., p. 284 (1859). Malacca.
Gargara malaya, *Centrotus id.*, Stål, l. c., p. 285 (1859). Malacca.

To Genus LEDRA, and following add :—

Ledra auditura, Walker, List Hom. B. M. Suppt. p. 249 (1858). Hong-kong.

L. quadricarina, Walker, l. c., p. 249 (1858). Hong-kong.

Tituria nigromarginata, *Petalocephala id.*, Stål, Ofvers. K. V.-A., Förh., p. 158 (1865). Malacca.

? *Ledra cultellifera*, Walker, J. Linn. S. Zool. i, p. 98 (1856). Singapore.

? *Ledra conifera*, Walker, l. c., p. 98 (1856). Singapore.

? *Ledra nigrilinea*, Walker, l. c., p. 98 (1856). Singapore.

? *Acocephalus olivaceus*, Walker, List Hom. B. M. iii, p. 846 (1851). Malacca, Philippines.

? *Cœlidia guttivena* and *punctivena*, Walker, J. Linn. S. Zool. i, p. 99 (1856). Malacca.

111. TETTIGONIA ALBIDICANS, Walker.

Tettigonia albidicans, Walker, Ins. Saund. Hom. p. 96. (1858).

Whitish testaceous : a dot on the vertex, stripe on frons, triangular spot on face, two spots on posterior margin of the pronotum and one on the anterior margin, a spot on the scutellum, disc of the pectus, abdomen, tip of femora, tibiæ and tarsi and dots on the veins of the tegmina near the tips, black : posterior margins of the abdominal segments and the tip, testaceous : wings blackish lurid towards the tips and along the interior border (*Walker*). Body long, 10½ : teg. 21 millims.

Reported from Silhat.

112. BYTHOSCOPUS (?) PUNCTIFER, Walker.

Bythoscopus punctifer, Walker, Ins. Saund. Hom. p. 104 (1858).

Dull testaceous, stout, very minutely speckled black : a dot on each side beneath at the base of the antennæ, the abdomen above and tips of hind femora, black : tegmina testaceous, veins pale, punctured black ; wings vitreous dark brownish grey (*Walker*). Body long, 4¾ ; teg., 10½ millims.

Reported from India.

To these add :—

Tettigonia tripars, Walker, J. Linn. S. Zool. i, p. 97 (1856). Malacca.
T. suavissima, Walker, l. c., p. 97 (1856). Singapore, Borneo.
T. jocosa, Walker, l. c. p. 97 (1856). Mount Ophir.
T. suturella, Stål, l. c., p. 288 (1859). Malacca.
Jassus (Thamnotettix) sinæ, Stål, l. c., p. 293 (1859). Hong-kong.
J. (Thamn.) alacer, Stål, l. c., p. 293 (1859). Hong-kong.

113. FULGORA NIGRIROSTRIS, Walker.

Hotinus nigrirostris, Walker, Ins. Saund. Hom. p. 28 (1858).
Fulgora nigrirostris, Butler, P. Z. S. p. 98 (1874).

Orange : head black, ascending, as long as the body, green beneath, with orange streaks on each side by the eyes : thorax with a broad stripe, pronotum with a band on each side, mesonotum with a streak and three dots on each side and the anterior tibiæ, black : tegmina black, very closely reticulated orange and with six orange bands, the first and third bands regular, second slightly dislocated hindward where it sometimes joins the third, fourth formed of three small widely separate dots, fifth of 4-5 large spots usually confluent, sixth very irregular of 3-5 spots and dots of various size : wings with the apical third black (*Walker*). Body long, 36—44 ; teg. 63—75 millims.

Reported from India ?, Pachebon (Siam). Distinguished from *F. viridirostris* by its brighter orange colour, by its longer head, and by its tegmina, which are more regular and not bordered white.

114. FULGORA DUCALIS, Stål.

Hotinus ducalis, Stål, Trans. Ent. Soc. (3 ser.) i, p. 576 (1863).

♂, ♀. Testaceous : feet more obscure ; tibiæ, tarsi, antennæ, and venter blackish : tegmina sordid virescent-whitish, black-fuscous towards the apex, veins virescent; three transverse rows of spots before the middle; a broad band behind the middle; some small spots, girdled white, placed behind the band, the veins green; apical part sparingly sprinkled with small whitish dots: wings whitish-green, apical part, black: cephalic process very long, gradually compressly narrowed to the apex, moderately curved. In stature similar to *F. candelaria*, Linn., cephalic process longer and, seen from the side, broader, frontal ridges more distinct (*Stål*). Long, 42—46; exp. teg. 80—94 millims.

Reported from Cambodia.

115. FULGORA CÆLESTINA, Stål.

Hotinus cælestinus, Stål, Trans. Ent. Soc. (3 ser.) i, p. 576 (1863).

♀. Weak green-olivaceous, venter and feet black-fuscous: head obscurely fuscous-testaceous: tegmina pale sordid alliaceous with three virescent-veined, blackish bands, the first broad near the base, hardly visible except on the clavus, the second narrow, placed a little before the middle and very narrow in the middle, the third broad and with three pale virescent olivaceous spots, the apical part behind this band greyish-whitish sprinkled with pale-cinctured olivaceous spots; the disc of the apical areas fuscous: wings of a beautiful azure, apical part black. Allied to *F. ducalis*, Stål, but the cephalic process is longer, fuscous-testaceous, much curved. Head gradually compressly narrowed from the base towards the apex, a little longer than the body, not impressed above before the middle (*Stål*). Long, 41: exp. teg. 90 millims.

Reported from Cambodia. This species is very close to *F. connectens*, mihi, described from Tenasserim at p. 130 (1885).

116. PYROPS NOBILIS, Westwood.

Fulgora nobilis, Westwood, Trans. Linn. Soc. xviii, p. 146, t. 12, f. 10 (1841).

Pyrops nobilis, Walker (excl. syn.), List Hom. B. M. ii, p. 268 (1851); J. Linn. S. Zool. p. 96 (1856).

Head with a process which is straight, gradually attenuated, obliquely truncated at the apex, furnished with acute black tubercles arranged longitudinally in six rows, of which two are above, two beneath, and two lateral: eyes pale fuscous, a pale acute tubercle behind the eyes: antennæ pale: rostrum scarcely reaching the lateral pair of feet; head pro- and meso-notum and tegmina luteous greyish, slightly tinged virescent, sprinkled with minute black spots: metanotum and abdomen fulvous-fuscous, the latter with transverse black spots: tegmina with numerous larger fulvous dots: wings white, somewhat opaque; veins pale, tinctured virescent: feet concolorous, with black bands; last pair of tibiæ inwards immaculate, externally punctured black; tarsi luteous; claws black (*Westw.*). Body with cephalic process, long, 63 ; cephalic process, long, 25 ; exp. teg. 115½ millims.

Reported from Malacca, Sumatra. *P. javanensis*, Distant, is closely allied to *P. nobilis*, West., from which it differs thus :—the prolongation of the head is not prominently and dentately spined as in *P. nobilis*, but only obtusely spined, thus giving the head a much more slender appearance, the spines in both species being arranged in six longitudinal rows, two above, two beneath, and one on each side : the black spotting is also much more minute and the colour of the dorsal surface of the abdomen is different. *P. mustelinus*, Distant, also from Java, is allied to *P. punctatus*, Olivier, from which it differs by the much more prolonged head, the apex of which is not distinctly curved upwards, and which is also more spotted with black than in Olivier's species : the abdomen above is ochraceous and not black, &c.

Genus CYNTHILA, Stål.

Stettin Ent. Zeit. xxiv, p. 230 (1863).

Head narrower than the thorax ; protuberance slender, porrect : frons much narrowed towards the base with two obsolete parallel ridges ; vertex sinuated at the base, a little broader than the eyes, ridged longitudinally in the middle : second joint of the antennæ subglobose : rostrum extending almost to the apex of the abdomen : thorax in the middle produced anteriorly in an angle, longitudinally ridged in the middle, very broadly sinuated at the base : scutellum tricarinate : tegmina somewhat narrow, scarcely amplified towards the apex, rounded at the apex with longitudinal veins rarely furcated, almost entirely transversely venulose : wings less ample, tegmina much shorter, posterior margin not sinuated, transverse veinlets remote : feet slender, last tibiæ 5-spinose. Allied to *Ulasia* (*Stål*).

117. CYNTHILA FEROCULA, Stål.

Cynthila ferocula, Stål, Stettin Ent. Zeit. xxiv, p. 230 (1863).

♂. Livid : here and there pale ferruginous : almost entire clypeus, the cephalic process, and the basal limbus of the abdominal segments, infuscate : very broad streak on the frons, dilated towards the apex, four small spots on the vertex, two longitudinal lines diverging backwards, posteriorly abbreviated, also several small spots sprinkled over the thorax above and two spots on the same between the lateral ridges and a broad patch on the deflexed sides, minute spots scattered over the scutellum, and bands and spots on the feet, black fuscous : last tibiæ uncoloured : tegmina weakly ferruginous from the base to beyond the middle, opaque, sparingly sprinkled fuscous, apical part somewhat vinaceous, veined ferruginous sprinkled with larger spots arranged in a longitudinal row and some minute spots, black fuscous: wings vitreous, veined fuscous, infuscate at the base at the longitudinal veins. Close to *C. apicalis*, Westw., smaller, scarcely differing except in the shorter and more slender cephalic process, which is slender, not or scarcely thickened towards the apex, produced obliquely forwards and upwards, as long as the scutellum (*Stål.*) Long incl. ceph. process, 20; exp. teg. 48 millims.

Reported from Ligor, Malacca.

Genus SCAMANDRA, Stål.

Stettin Ent. Zeit., xxiv, p. 232 (1863).

Head not protuberant; frons a little broader beneath than above the middle, with the lateral margins of both halves somewhat parallel, and sinuated in the middle of the lower half, abruptly narrowed at the base and very slightly reflexed, not higher than the vertex, emitting from the base a small (mobile ?), cylindrical, furrowed corpuscule, reflexed above the anterior part of the vertex, furnished with two, sometimes obsolete, parallel ridges: thorax not ridged in the middle: first pair of femora not or scarcely amplified above at the apex; last pair of tibiæ, with three spines, furnished above at the base with a tubercle, often much elevated and acute *(Stål)*.

118. SCAMANDRA HECUBA, Stål.

Scamandra hecuba, Stål, Stettin Ent. Zeit., xxiv, p. 234 (1863).

♀. Ochraceous, beneath more obscure: tegmina less obscurely sordid subsanguineous, sprinkled with small fuscous spots which are sometimes encircled pale, almost half the apical part fuscescent-ochraceous anteriorly rounded, veined pale and subsanguineous: wings purely and obscurely sanguineous, the base itself black-fuscous, posterior limbus narrowly whitish, apical part fuscescent-ochraceous, anal area at the base with a fairly large flavescent spot: feet blackish: dorsum of the abdomen weakly sordid testaceous-flavescent, anus sanguineous. Close to *S. rosea*, Guérin, lateral margins of thorax more divergent, tegmina less broad near the apex, apex semicircularly not obtusely rounded; the apical ochraceous part of the tegmina is larger, anteriorly less distinctly not ending in a pale arch, remaining part without fuscous bands: wings scarcely whitish veined on the disc *(Stål)*. Body long, 23; exp. teg. 74 millims.

Reported from Ligor, Malacca.

119. SCAMANDRA SEMELE, Stål.

Scamandra semele, Stål, Stettin Ent. Zeit. xxiv, p. 235 (1863).

♂. Fawn-colour: basal two-thirds of the tegmina minutely, palely and sordidly sprinkled sanguineous, areolas of the apical part fuscescent in the middle: wings weak sordid sanguineous, base itself black-fuscous, spotted fuscous in the anterior area, posterior limbus whitish, spotted ochraceous, apical part fuscescent, veined ochraceous: abdomen sanguineous, genitalia black: feet, especially the tibiæ and tarsi, infuscate. Form of tegmina very distinct, they are amplified at the apex and rather obtusely rounded, costal margin straight, scarcely sinuated near the apex, commissural margin distinctly sinuated near the apex *(Stål)*. Body long, 13; exp. teg. 37 millims.

Reported from Ligor, Malacca.

120. SCAMANDRA ROSEA, Guérin.

Aphæna rosea, Guerin, Voy. Bél. Ind. Orient. p. 454, t. 3, f. 3 (1834); Walker, List Hom. B. M. ii, p. 274 (1851): J. L. S. Zool. i. p. 84 (1858).

Aphæna saturata, Walker, J. Linn. S. Zool. i, p. 143 (1857).

Scamandra rosea, Stål, Stettin Ent. Zeit. xxiv, p. 233 (1863).

Head without a prolongation, with the thorax yellow turning into ferruginous: pronotum strongly lobed in the middle of its anterior border, emarginate on its posterior border: tegmina yellow-ferruginous for two-thirds of their length, apical part saffron-yellow, a little browner on the margins: the reddish part is traversed by two oblique brown bands, of which the external is arched outwards with numerous small spots of the same colour between them: wings rosy turning into vermillion with yellow patches at the base and the tip; the posterior margin with a white smear in the entire rosy space, where also are irregular striæ more or less white: abdomen above and beneath vermillion-red with more yellowish transverse bands; feet brown *(Guérin)*. Body long, 21; exp. teg. 65 millims.

Reported from Java, Sumatra, Malacca, Singapore.

121. APHANA FARINOSA, Fabricius.

J. A. S. B. liv, (2), p. 142, no. 26.

Head flat, dilated, obscurely ferruginous, with two farinose white spots: thorax ridged, obscurely ferruginous: tegmina white-farinose, at the base fuscous often varied ferruginous, at the apex fuscous hyaline: wings rufous at the base, punctured hyaline, black at the apex: body fuscous; abdomen flavescent *(Fabr.)*.

122. APHANA ATOMARIA, Fabricius.

J. A. S. B. liv, (2), p. 143, no. 27.

A little smaller than *A. farinosa*, Fabr., body dull black ; head and thorax flavescent, spotless, the latter carinate : tegmina white-farinose at the base, more obscure at the apex ; with two marginal spots, one at the narrow margin, the larger posterior : wings sanguineous with several white-hyaline and dull black spots, black at the apex (*Fabr.*).

123. EUPHRIA DISCOLOR, Guérin.

Aphæna discolor, Guérin, Voy. Bél. Ind. Orient., p. 452, t. 3, f. 2 (1834) : Spinola, A. S. E. F. viii, p. 242 (1839) : Walker, List Hom. B. M. ii, p. 273 (1851) ; J. Linn. Soc. Zool. X, p. 96 (1867).

Aphæna blattoides, Walker, l. c. Suppt. p. 46 (1858).

Euphria discolor, Stål, Stettin Ent. Zeit. p. 232 (1863).

Head red, oblong, flattened, seen from above little prominent ; frons rounded and produced in a small horn curved backwards and scarcely reaching the middle of the pronotum, compressed on the sides and grooved ; front of the head oblong, labrum elongate, broad in front, ending in a point and covering the base of the rostrum ; the rostrum is longer than the head, four-jointed, tip extending to and passing a little beyond the last pair of coxæ : pronotum black, sinuate in front, finely bordered red, very slightly emarginate behind, about four times broader than long : mesonotum triangular, not so long as broad, almost twice as broad in the middle as the pronotum, ending posteriorly in an acute point ; it is black with a broad, transverse, rounded, red patch in the middle : the metanotum is not so broad and has several impressions and a smooth elevation in the middle ; it is blackish varied with red and has several white farinose patches : there is a small brown triangular piece at the base of the pronotum which covers the articulation of the tegmina ; the tegmina are oblong a little amplified at the apex ; two and half time longer than broad ; veins numerous, of a bright reddish brown especially at the base ; marked with irregular black patches more numerous beyond the middle ; tip of saffron-yellow passing gradually into red ; between the black patches and the red are large white farinose patches larger at the base and towards the side, which is also marked by large black patches or spots which become smaller towards the tip and form small patches which border the tegmina : wings black with the exterior border brown and the internal margin near the abdomen pale and a little transparent ; they are marked with white rounded patches, farinose and thicker at the base : the abdomen above and beneath brown, orange-yellow towards the borders of the segments, covered above almost entirely with a white powder similar to that on the wings: thorax beneath, femora and all the feet, red; anterior tibiæ and tarsi, black; intermediate pairs black outwards, reddish within, last pairs red with the tip and tarsi, black *(Guérin)*. Long, body, 23: exp. teg. 75 millims.

Reported from Sumatra, Java, Cochin-China.

124. EUPHRIA CORNUTA, Fabricius.

Lystra cornuta, Fabr., Syst. Rhyng. p. 57 (1803); Germar in Thon's Arch. ii, (2) p. 52 (1830); Guérin, Voy. Bél. Ind. Orient. p. 452 (1834).

E. (Callidepsa) cornuta, Stål, Hem. Fabr. ii, p. 87 (1868).

♂. Sordid sanguineous-flavescent: tegmina broadly sanguineous, sprinkled with numerous, here and there confluent, black spots, the very large disc behind the middle, black: wings and tibiæ sordid sanguineous; the tips of the tibiæ, tarsi, lateral margins of the thorax, and two lateral spots on the pectus, black: basal horn on the frons, erect, gradually acuminated, slender, somewhat larger than the vertex and thorax together *(Stål)*. Body long, 22; exp. teg. 70 millims.

Reported from China.

125. POLYDICTYA APHÆNOIDES, Walker.

Chalia aphænoides, Walker, Ins. Saund. Hom. p. 31 (1858).

♂. Ferruginous: abdomen black with red bands: tegmina with the apical third part paler: wings with whitish reticulations along the interior border and about the interior angle *(Walker)*. Body long 12½: teg. 37—38 millims.

Reported from Penang.

The present paper concludes this contribution to a '*Homoptera Indica*; for the families *Psyllidæ*, *Coccidæ*, *Aphididæ*, *Aleurodidæ*, &c. have practically been unworked in India, and whoever takes them up will probably have to ignore much that has been written about them. My object has been to provide those who may become interested in this order of insects with some guide to the classification and arrangement, and was at first devoted to the correction of our only English list, but this became so unsatisfactory that it was found better to revise the whole on the basis of Stål's numerous and elaborate essays. I have preferred where possible to give only the original descriptions, but where Stål, Signoret, Butler, or Distant have redescribed a species, their descriptions are recorded. It would have been desirable to give a new description of many species, but knowing the fruitful source of confusion which identification without comparison with types has proved in the history of this order, I have translated or transcribed, with some omissions and additions, the original descriptions, however unsatisfactory these were. This list of recorded species is, it is believed, tolerably complete, but we have not in our Indian Museum examples of even a moiety of those given, and I would now endeavour to enlist the efforts of observers in India to complete the series. The number of species here described under each family is as follows :—

Cicadidæ,	115
Cercopidæ	67
Membracidæ,	33
Jassidæ,	38
Fulgoridæ,	204—457

These with the species indicated as likely to exist but not described bring up the number to close on 500. These figures could probably be doubled in a few years, for the number of *Jassidæ* alone awaiting examination should add several hundred species to our Indian fauna.

INDEX.

This index is to the six papers on Indian Homoptera of which one appeared in 1884 (Vol. lii), three in 1885, and the remainder in 1886. The names of genera are given in capitals, and those generic and specific names which have been sunk or have otherwise fallen out of use are in *italics*.

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VIII.—*On a new Species of Uredine parasitic on* Cedrus deodara, *Loudon*.

By SURGEON A. BARCLAY, M. B., *Bengal Medical Service*.

[Received Jan. 16th ;—Read March 3rd, 1886.]

(With Plates VI. and VII.)

This parasite is by no means conspicuous and is decidedly uncommon. It was observed during May 1884 at two isolated localities between Simla and Wangtu in the Sutlej Valley, and I have searched in vain for it among the numerous deodars about Simla. At one of the two places in which it was found (Turanda), it occurred on several trees, but at the other (between Sungri and Bagi), on two trees only. All the trees on which it occurred were well-grown, and it was observed that when a tree was attacked at all it was so very largely. A few needles only of certain rosettes of needles are attacked, and these when the affection is fully developed curve downwards (fig. 1.) This curling of certain needles gives the branches a curious frayed appearance by which alone attention is generally attracted to the occurrence of the parasite. The affected needles are not discoloured, but retain their normal green colour. The æcidia protrude in great numbers on the upper surfaces of affected needles, a single needle bearing sometimes as many as from 10 to 12 of them. They are generally arranged in a single row on one or other side of the middle line ; but occasionally, towards the distal end of the needle, a second parallel short row exists. To the naked eye no spermagonia are visible, but with a field-lens they may be seen in great numbers as minute points scattered all over the needle.

The affection does not at first sight appear to cause much injury, but, when it is remembered that an innumerable number of needles are affected, and that these fall early, the conclusion cannot be resisted that so large a drain upon the assimilative organs of the tree must be attended with the most injurious consequences to its welfare. The fungus is confined entirely to the leaves, the mycelium never being found in the tissues of the stems bearing affected needles. The mycelium is therefore not perennial. Before entering upon a description of the structure of the fungus and of its morphological relations to its host, it is necessary to give an account of the normal structure of the needle.

Normal Structure of Deodar Needle.—The transverse section of a young normal needle is broadly quadrangular, one angle being superior, one inferior, and two lateral; the superior angle is truncated and grooved; as the needle grows older, however, the upper angle becomes gradually flattened until at last the section of an old needle is more triangular than quadrangular (fig. 8). On each of the four sides of the young needle there are as a rule four longitudinal rows of stomata, and on either side of the needle a resin canal, one of which is always larger than the other, though both are of the same structure. The centre of the needle is occupied by the wood bundle, the xylem being below and the phloëm above.

Looking next to the more minute structure of the tissues of the needle, it will be observed that the needle is clothed externally by a single layer of epidermis cells. Under this is a layer of thick-walled hypodermal cells, interrupted opposite the stomata, and double at the angles and between the stomata, where there is only space for a single cell; this layer is double also at each side of the resin canals. These cells are from three to four times as long as they are broad, and the epidermal cells are about one-third the length of the hypodermal cells. The resin canals are clothed internally by a layer of thin-walled epidermis cells supported externally at about three places by a second layer of similar cells: the whole is surrounded by a layer of sclerenchyma fibres, except where the canal is bounded by the hypodermal cells. Below the hypodermal layer follow large parenchymatous chlorophyll-containing cells radially arranged. These cells internally abut against the cells of an endodermal sheath surrounding the central vascular bundle, much in the same way as that in which palisade cells of leaves generally abut against the spongy tissue. This parenchymatous tissue is loose with numerous large air-cavities. The cells of the endodermal sheath are closely contiguous laterally, and are densely filled with starch grains. They are large cubical cells nearly twice as long as they are broad. The tissues enclosed by this sheath are :—(*a*) in the centre the xylem and phloëm divided into two lateral divisions; the xylem being below: (*b*) beyond the phloëm a group of much thickened sclerenchyma fibres: beyond these again and between them and the endodermis, (*c*) a set of large water-containing cells with numerous bordered pits. Laterally the place of these last mentioned cells is taken by smaller cells filled with starch grains and a few sclerenchyma fibres. Several of these characters may be seen illustrated in figs. 9 and 10, which, however, represent attacked needles.

Structure of Affected Needle.—The general outline of a transverse section is considerably altered (fig. 9). The parenchyma cells, especially near the æcidia, are larger and rounder than usual, losing their palisade like character and resembling spongy tissue (fig. 10). The resin canals have entirely disappeared. The parenchymatous tissue is invaded everywhere, but especially in the neighbourhood of the æcidia, by mycelial filaments. These filaments are, however, entirely arrested at the endodermal sheath. They are not convoluted except at the bases of æcidia. They are best seen in the air-cavities of the parenchymatous tissue and are of the usual characters, that is, branched, septate, and filled with clear fluid or finely granular matter (fig. 3). A few haustoria of the branched type penetrate the parenchyma cells (fig. 6). The æcidia are very superficial and measure about 0·177 m. m. in breadth by 0·166 m. m. in depth in transverse sections. At their bases the mycelium is densely aggregated, pushing aside and disorganising the parenchymatous and hypodermal cells (fig. 7.) The hymenium is flat and regular, and the rows of æcidiospores are given off from pointed sterigmata (fig. 7.) There are no intercalary cells between successive spores, and each row consists of about six spores.

The pseudoperidium is a very perishable structure, consisting of a single layer of more or less irregular cells irregularly arranged together and easily becoming detached from one another (fig. 5). In every transverse section of a needle through an æcidium from five to nine spermagonia are involved. They are very minute, measuring about 0·081 m. m in breadth by 0·045 m. m. in depth, and very superficial, being for the most part above the level of the epidermis. Their bases only are insinuated between the epidermis cells, and the underlying hypodermal cells are not displaced to any appreciable extent. The spermagonia are generally flattened on their summits (fig. 7.) They appear to have a special proneness to emerge on the margins of æcidia encircling them, for, in every transverse section of a needle passing through an æcidium, a spermagonium (or part of one) may be seen at either side of the æcidium (fig. 7.)

The æcidiospores are spherical or oval with orange-yellow granular contents (fig. 4.) The dry spores measure on an average $12·7\,\mu \times 8·4\,\mu$; but after moisture they swell considerably, attaining average dimensions of $17·9\,\mu \times 14·8\,\mu$. The epispore is very thick and beset externally with numerous prominent tubercles (fig. 4. c.), giving, in optic section, a radially striated appearance (fig. 4, a, b.) On my return to Simla about three weeks after gathering them they refused to germinate. Possibly the period during which they remain germinable had been exceeded, but possibly also they were not properly preserved during these three weeks.

Such then are the morphological characters of one stage of existence of a uredine inhabiting the most valuable of Indian conifers. I searched carefully for some clue to its further life-history but in vain. As the parasite does not occur in Simla, so far as I am at present aware, I have no immediate prospect of pursuing the investigation, but must leave it to any to whom facilities may be offered for undertaking the research. I have looked frequently on deodars for vegetable parasites, but beyond the one just described I have seen no trace of any other form. The remaining cycle or cycles of its development are therefore in all probability passed through on some other host.

EXPLANATION OF THE PLATES.

PLATE VI.

Fig. 1. General appearance of a rosette or fascicle of leaves with four needles attached. These are strongly curved whilst the unaffected leaves are straight. About natural size.

2. Appearance of æcidial fructification protruding through the epidermis. The black points indicate spermagonia. About 15 times natural size, as seen under a field-lens.

3. Mycelial filaments in an air-space in the parenchymatous tissue. × 580.

4. Æcidiospores; *a* and *b* in optic section: *c*, surface view showing tubercles on external surface of epispore. × 580.

5. Peridial cells. × 250.

6. Haustorium in a parenchyma cell. × 500.

7. Section through a ripe æcidium. On the right margin the section passes through the middle of a spermagonium, on the left it includes the margin of a second. × 250.

PLATE VII (Photographs).

Fig. 8. Transverse section of an old deodar needle, normal.
9. The same of an affected needle.
" 10. The same through an æcidium, more highly magnified.

IX.—*On three new Himalayan Primulas.*
By G. King, M. B., LL.D., F.L.S.

[Received and Read April 7th, 1886.]

(With Plates VIII., IX., and X.)

Since the publication of the *Primulaceæ* by Sir J. D. Hooker in his Flora of British India, several collections of plants from the higher parts of the Eastern Himalaya have reached the Calcutta Herbarium. Amongst these I find three species of *Primula* which I believe to be undescribed, and which I now describe and name.

1. Primula Tanneri, King. Glabrous, not mealy; basal sheaths short, broad, membranous. Leaves long-petiolate deltoid, with cordate base and acute apex, the edges irregularly and coarsely serrate, glaucous beneath when young and sometimes slightly puberulous, especially on the nerves, blade about 2 inches long and 1·5 in. broad; petioles 1·5 in. long, often narrowly winged. Scape slender, from 5 to 8 inches long, two- to eight-flowered, bracteoles minute subulate from broad bases, pedicels slender and unequal, some of them as long as the flowers. Calyx infundibuliform, cleft half-way down, the teeth lanceolate, rather longer than the tube of the corolla. Corolla bluish white; the tube cylindric or sub-infundibuliform, the throat with a dentate annulus, the limb ·75 in. across, deeply lobed, the lobes obcordate. Ovary globose pyramidal; the stigma sub-capitate. Fruit unknown.

Hab.—Sikkim Himalaya at elevations of about 11,000 feet, Col. H. C. Tanner: Chumbi Valley, Dr. King's collectors.

This approaches *P. geraniæfolia*, Hook, fil., *P. Kaufmanniana*, Regel, and *P. cortusoides*, Linn., in flowers and inflorescence; but the leaves are very different.

There is in the Calcutta Herbarium a specimen in young fruit, but without corollas, of a *Primula* which has leaves very like those of this species. It was collected by Mr. R. Pantling in the Lachen valley in Sikkim at an elevation of about 12,000 feet, and it evidently belongs to a nearly allied, but distinct species, which I have provisionally named *P. deltoidea*. Mr. Pantling notes that the corolla of his plant is purple with a yellow eye.

Some fragmentary specimens in the Calcutta Herbarium, named *P. Balfouriana*, Watt MSS., also come near this.

Plate VIII, fig. 1 *Primula Tanneri*, King, 2 corolla *natural size*, 3 calyx, ovary, style, and stigma, 4 corolla, 5 stamens, *slightly enlarged.*

2. PRIMULA PANTLINGII, King. Glabrous, not mealy; the sheaths very short. Leaves sessile ob-lanceolate, the edges remotely and obscurely sub-dentate, slightly revolute (at least when dry), about 1·5 in. long and ·3 in. broad. Scape 5 or 6 inches long, one- to two-flowered; bracteoles few minute subulate; pedicels rather stout, about ·2 in. long. Calyx narrowly campanulate, about half as long as the tube of the corolla, cleft about half way down; the teeth lanceolate-acuminate. Corolla yellow, glabrous, the tube sub-infundibuliform, the throat without an annulus, the limb about 1 inch across, deeply lobed; the lobes obcordate, the apical notches wide and deep. Ovary globose; stigma capitate. Fruit unknown.

HAB.—At Chopta, altitude about 12,000 feet, in the Lachen valley, Sikkim, growing in damp places and even actually in water: Mr. Pantling's collector.

This approaches *P. Dickieana*, Watt, but has narrower leaves and rather fewer smaller flowers than that species. The corollas of this are pale yellow with a darker yellow eye. They are extremely beautiful.

Plate IX, *fig.* 1 *Primula Pantlingii*, King, *natural size;* 2 and 3 corolla; 4 and 5 calyx; 6 anthers, *slightly enlarged.*

3. PRIMULA JAFFREYANA, King. Glabrous, slightly mealy when very young; the sheaths at the base of the leaves membranous short. Leaves obovate-elliptic, narrowed into a short winged petiole, the apex blunt, the edges irregularly and closely dentate; blade about 1·5 in. long, and from ·5 to ·75 in. broad; petioles from ·5 to ·75 in. long. Scape 3 inches long, many-flowered; bracteoles numerous, subulate; pedicels slender varying from ·5 to ·75 in. long. Calyx cylindrico-campanulate, about half as long as the tube of the corolla, 5-ridged externally, cut about half way down; the teeth linear-lanceolate. Corolla pale purple, the tube cylindrical, inappendiculate, the limb spreading, about ·5 in. across, rather deeply lobed; the lobes broadly obcordate. Ovary globose; stigma faintly 2-lobed. Fruit not seen.

HAB.—Chumbi valley, E. Himalaya, at elevations of about 12,000 feet; Dr. King's collector.

This approaches *P. Tibetica*, Watt; but has much larger, more membranous, leaves. I have named it after Mr. A. T. Jaffrey, Curator of the Botanic Garden, Darjeeling.

Plate X, fig. 1 *Primula Jaffreyana,* King, 2 calyx, 3 entire flower, *natural size*, 4 corolla and anthers, 5 ovary, style, and stigma, 6 anthers, *slightly enlarged.*

X.—*On the Life-History of certain Calcutta Species of* Satyrinæ, *with special Reference to the Seasonal Dimorphism alleged to occur in them.*—*By* LIONEL DE NICE'VILLE, F. E. S.

[Received 22nd April ;—Read 2nd June, 1886.]

(With Plate XII.)

At the meeting of this Society held on the 3rd December, 1884, I read a paper on the Butterflies of Calcutta, and exhibited a series of specimens, chiefly appertaining to the subfamily *Satyrinæ*. In this paper I expressed the opinion that a very marked seasonal dimorphism occurred in this and other groups of butterflies. I also forwarded the same set of specimens to England, and my friend and colleague, Mr. W. L. Distant, exhibited them at the meeting of the Entomological Society of London for February, 1885. My object in bringing the matter thus prominently to the notice of both Societies was to ascertain from the members if they could throw any light on, or offer any opinion as to, the cause of these species being furnished, on the underside of the wings in the brood or broods (most probably the latter) that are on the wing during the rainy season, with strongly marked and conspicuous ocellated spots, while in the same species, or other species that take their place, during the cold and dry seasons these markings are obsolete or entirely wanting, and the general tone of colouration is much paler and more leaf-like. This expression of opinion may have been somewhat premature so far as the question of the seasonal dimorphism went, which certainly had not at that date been proved; but certainly not so far as the occurrence of ocellated species in the rains and of non-ocellated ones in the cold and hot seasons is concerned, facts of which I had convinced myself by long previous observation. It may be repeated that the Calcutta year is roughly divisible into a cold season (extending from the middle of October to end of March), a hot season (from April to middle of June), and a wet season or rains (from the middle of June to the middle of October).

A short discussion followed Mr. Distant's remarks on the specimens exhibited at the Entomological Society of London, but I was sorry to find that no solution of the phenomenon was suggested by the members present. My suggestion was that the obliteration of the ocelli was an advantage to the insects during the cold and hot seasons, as at those times the vegetation is much more scanty and dried up, the insects live chiefly among the grass, and would consequently be easily seen were they not inconspicuously coloured and marked; while in the rains, the vegetation being then very dense, they can hide themselves, and their conspicuous livery is no bar to their safety. My belief that these ocellated spots are conspicuous and non-protective rather than the reverse, is, I am aware, contrary to the opinion of many eminent naturalists; I can, however, only state my opinion to the contrary for what it is worth and as the result of my own observations: I can see, for instance, a *Mycalesis mineus* with its big eyes and prominent white discal line far sooner and more easily than I can the plain evenly coloured and marked *M. indistans*, but whether this is so with the birds, lizards, Mantodea, predaceous flies, &c., which live largely on butterflies, I am unable to say. Having brought the subject to notice, I hope that it will attract the attention of observing naturalists, and that a solution of the question may soon be forthcoming.

As to the second point, whether the fourteen named species of butterflies referred to represent that number of distinct species or half that number, I have been able to prove by breeding direct from the egg that the extraordinary seasonal dimorphism which I had suspected to occur does actually exist in the case of four of them; the three remaining species must wait till the commencement of next rains, when I hope to complete the experiment.

The transformations of the genus *Melanitis* have long been known. As far back as 1829 Dr. Horsfield* figured the larva and pupa from Java of *M. leda* (= *M. determinata*, Butler); Mr. Moore† in 1881 figured those of *M. tambra* from Ceylon, and Surgeon-Major Forsayeth‡ those of *M. ismene*. But the transformations of the large genera *Mycalesis* (containing 86 species, according to Mr. Moore's Monograph in 1880, and many new species since described) and *Ypthima* (containing 31 species up to 1877, according to Mr. Kirby's invaluable Catalogue) have hitherto been quite unknown. And yet, so far as my experience goes, it is very easy to breed them: it is only necessary to procure live females, and to shut them up in any kind of box, in which they will lay eggs; if the box has a gauze cover, the eggs will be found attached to it; if blades of grass, or, better still, a pot of growing grass, is placed in the box, the eggs will be laid on the grass. I have had no difficulty in getting species of *Satyrinæ* to oviposit, though I have often failed with butterflies of other families. I will now proceed to give in detail the results of my experiments.

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* Cat. Lep. Mus. E. I. C. pl. viii, fig. 9, *larva*; 9*a*, *pupa* (1829).

† Lep. Cey. vol. i, pl. ix, figs. 2*c*, *larva* and *pupa* (1880).

‡ Trans. Ent. Soc. Lond. 1884, pl. xiv, figs. 2, *larva*, just before turning to a pupa; 2*b*, *pupa*.

1. Ypthima huebneri, Kirby. Pl. XII, Fig. 1.

Y. hübneri, Kirby, Syn. Cat. Diurn. Lep., p. 95, no. 18 (1871); idem, id., Distant, Rhop. Malay., p. 57, no. 4, pl. vii, fig. 5, ♀ (1882); *Y. huebneri*, Marshall and de Nicéville, Butt. of India, vol. i, p. 226, no. 217, pl. xvii, fig. 65, ♂ (1883); *Y. philomela*, Hübner (*nec* Linnæus), Zutr. Ex. Schmett., figs. 83, 84 (1818); id., Hewitson, Trans. Ent. Soc. Lond., third series, vol. ii, p. 284, no. 4 (1865); *Y. howra*, Moore, Journ. Asiat. Soc. Bengal, vol. liii, pt. 2, p. 17 (1884).

On September 5th, 1885, Captain C. A. R. Sage[*] of the 18th Bengal Infantry sent me in a tin box with a gauze cover seven live females which had that day been caught. At the hour I received them (5-30 P. M.) they had laid over 70 eggs of a beautiful light green colour on the gauze cover, and two on the side of the box. On Sept. 9th, larvæ commenced to emerge, and I placed the gauze on which the eggs were laid amongst some grass growing in a pot, covering the whole with a large wooden box with glass sides. The larvæ rapidly fed up, and turned to pupæ, the imagines emerging between October 19th and 25th, as true *Y. huebneri* like their mothers. The pupæ were sometimes green, sometimes brown.

On my return on November 8th from my annual autumn holiday in the Sikkim hills, Captain Sage gave me six about half-grown larvæ which he had hatched on October the 20th from eggs laid by *Y. huebneri* on the 15th. Being few in number these larvæ were fed up by me in a stoppered glass jar, fresh grass being supplied about every other day. The first of them changed to a pupa on November 20th, and the imago emerged on December 7th; on November 22nd, another larva changed to a pupa, the imago emerging December 9th; on November 25th, two more larvæ changed to pupæ, the imagines emerging Dec. 12th; on December 3rd, another larva changed to a pupa, the imago emerging December 19th; on December 12th, the last larva changed to a pupa, the imago emerging on January 1st. All the pupæ were green, and all the imagines were true *Y. howra*. The colour of the pupa does not, I believe, affect the imago in the least; it is purely protective, the green ones in nature being probably attached to the green blades of grass, while the brown ones occur on the dark-coloured stems near the roots. The larva when full grown is about an inch or a little less in length, entirely green, the head round, body of nearly equal thickness throughout, slightly increasing in size to the fifth segment, thence gradu-

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[*] I am much indebted to this gentleman, who was at that time living on the outskirts of Calcutta (Alipur), for live specimens of the different butterflies with which I have experimented. He also bred the same four species from different batches of eggs, several of them more than once, and always arrived at the same results as I did, as I can testify from having perused his notes and inspected his specimens.

ally tapering to the anal segment, which is furnished with two very short diverging immovable processes or tails. The head and body are thickly shagreened, that is, covered with very small closely-set tubercles emitting fine colourless hairs. There is a dorsal line somewhat darker green then the rest of the body, which becomes white at the fourth segment, and extends right through the crown of the head. There is also a paler green lateral line below the spiracles. The pupa is either green or brown, with the head rounded, the edge of the wing-cases raised and angled anteriorly, the thorax humped, and marked, like the abdominal segments, with some dark brown waved lines and spots.

With regard to this species Mr. Butler remarks* that I have "yet to explain to which form, the dry or the wet, the intermediate grades" [between Y. *huebneri* and *Y. howra*] "belong." The intergrade forms referred to, in which "the ocelli are reduced to points," probably occur either at the beginning of the wet or of the dry seasons, though in the case of this genus I have noticed that the seasonal forms are less well-marked than in either *Melanitis* or *Mycalesis*: now and again a perfectly ocellated specimen may be found in the middle of the dry or cold season, or a non-ocellated one in the rains, but this does not much militate against the fact that in the rains the prevailing form will be ocellated, in the other seasons non-ocellated. The many variations that occur in this species are very fully treated on in "The Butterflies of India, Burmah and Ceylon." I was a little surprised to see that Mr. Moore, in the face of what is recorded in that work on this subject, and without any reference thereto, had described one form of it under the name of *Y. howra*.

Captain Sage first took *Y. howra* on November 18th, at a time when a few *Y. huebneri* were still on the wing, this being the earliest date on which he captured the cold and dry season non-ocellated form of this species.

2. YPTHIMA PHILOMELA, Johanssen. Pl. XII, Fig. 2.

I am unable to give the synonymy of this species, whose correct identification and geographical range are matters about which there is much uncertainty and difference of opinion. I consider that the species should be known as *P. philomela* (as pointed out by Mr. Kirby in his Catalogue), Johanssen having described it first from Javan specimens, of which there are a pair in the Indian Museum, Calcutta, collected by Dr. Horsfield in that island; these specimens are, so far as I can see, conspecific with the Indian ones. The *Papilio lisandra* of Cramer described from China may or may not be distinct, for I possess no specimens from that country for comparison. Mr. Moore considers the Indian species to be the *Papilio baldus* of Fabricius, who described it from India; in this he is followed by many authors, including Hewitson in his Monograph of the genus, who gives Java and Sumatra as well as India as its habitat. Mr. Elwes records it from China, Japan, and Amurland. Mr. Distant (who followed Mr. Butler) identified it as the *Y. methora* of Hewitson, and has sent me several specimens from the Malay Peninsula which I am unable to separate specifically from *Y. philomela*. Mr. Butler identifies[*] my Calcutta specimens as "*Y. methora*, Hewitson, variety." I have lately, since Vol. I of "The Butterflies of India" appeared, had the good fortune to obtain, from Mr. Otto Möller from Darjiling, and from Mr. A. V. Knyvett from Buxa, Bhutan, a considerable series of both the ocellated and non-ocellated forms of the true *Y. methora*, the former occurring in the spring (March and April), the latter in the summer (August). Hewitson's types were all three females, the locality from which he described the species being North India and, as given in Mr. Kirby's Catalogue of his collection, Sikkim and Yunan. The specimens Major Marshall and I identified in "The Butterflies of India" as *Y. methora* from Yunan do not appear to be that species (Hewitson seems to have made the same mistake, as he placed specimens from both Sikkim and Yunan under that name), having a sexual streak in the male, which the true *Y. methora* does not possess. I cannot therefore agree with Mr. Butler in considering the Calcutta species as a variety of *Y. methora*, of which Mr. Hewitson described and figured a female of the strongly-ocellated summer brood. *Y. laroides*, Westwood, is stated to occur at the Cape of Good Hope, but Mr. Trimen does not mention it in his South African Butterflies; and it also may be a synonym of *Y. philomela*. *Y. lara*, Donovan, is recorded from the Cape, but it is also unknown to me. Lastly, Mr. Butler described a species of *Ypthima* from Upper Tenasserim under the name of *marshallii*. Mr. Moore has kindly thus named for the Indian Museum, Calcutta, numerous specimens of the non-ocellated form of *Y. philomela*, and on this authority, in addition to the fact that these Calcutta specimens agree fully with Mr. Butler's description of *Y. marshallii*, I expressed my opinion that this species is nothing else than the non-ocellated form of *Y. philomela*. Mr. Butler (without having seen my specimens) denied the fact, but on seeing them subsequently, when Mr. Distant took them to the

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* Proc. Ent. Soc. Lond., 1885, p. v.

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[*] I have to express my indebtedness to Mr. W. L. Distant for having, after some difficulties and delays which have retarded the publication of this paper many months, obtained Mr. Butler's identifications of the specimens exhibited at this Society and also at the Entomological Society of London. When Mr. Butler wrote his remarks on my suggestions on the seasonal dimorphism obtaining in these species, he had not even seen the specimens in question!

British Museum for his inspection, he admitted that they are that species. This name, therefore, falls.—Leaving the confused and disputed question of the synonymy of this species, I will proceed to give the results of my experiments in breeding it.

On September 10th, Captain Sage sent me a tin box with net cover containing several females of *Y. philomela.* The insects had laid numerous eggs on the net, which differ considerably in colour from those of *Y. huebneri*, being at once distinguishable by the naked eye. On September 14th, two larvæ emerged. On September 18th, eighteen more emerged, and I placed all the young caterpillars in a stoppered glass jar on the same grass as that which was used for *Y. huebneri.* The larvæ are at first exceedingly small, pinkish-white in colour, hairy, and with a pinkish head. When full-grown, they are a full inch in length, rather larger therefore than *Y. huebneri*, with the body more compressed than in that species and flattened to a ridge line below the spiracles, the head rounded, the second segment a little larger than the head, the third and fourth segments gradually increasing to the fifth, then very gradually decreasing to the anal segment, which is furnished with two very small immovable pointed processes or tails. The larva is reddish-ochreous coloured throughout, not green as in *Y. huebneri*, with an indistinct darker dorsal line, two narrow subdorsal ones, and several other very narrow lines placed very close together in the spiracular region above the lateral ridge. There is also a subdorsal series of about eight short oblique streaks. The head and body throughout are shagreened, being covered with small tubercles bearing very fine short hairs. The pupa is either pale ochreous with darker ochreous and brown markings, or pale green with dark brown markings. It is very narrow, the thorax longitudinally humped above, with another ridge just before the abdominal segments placed transversely. On Oct. 8th, one larva; on Oct. 9th, seven larvæ; on Oct. 10th, two larvæ; and on Oct. 11th, one larva changed to a pupa. On Oct. 17th, three females emerged; on Oct. 19th, two males and one female; on Oct. 23rd, two females, and on Oct. 24th, one female emerged; and two larvæ died. All these butterflies proved to be true *Y. philomela* like their female parent.

On my return from Darjiling on November 8th, Captain Sage gave me eight very small larvæ which had emerged on November 4th from eggs laid by a female *Y. philomela* on October 29th. On December 16th, one larva changed to a pupa, which disclosed a male imago on January 5th; on December 18th, a larva changed, a female imago emerging on January 10th; on December 24th, a larva changed to a pupa, a female emerging on January 16th; and on December 28th, two larvæ changed to pupæ, a female emerging on January 19th from the one, and a male on January 20th from the other. Two larvæ died, having shrivelled up in the act of turning, possibly in consequence of the atmosphere of the glass jar in which I bred them not being sufficiently moist, for in nature these animals must get heavily drenched with dew every night. All these butterflies bred from eggs laid by *Y. philomela* proved to be true *Y. marshallii.* I may add that Captain Sage, who kept a careful register of his captures from day to day, first observed "wild" specimens of *Y. marshallii* on November 18th, having for months before caught *Y. philomela* only.

3. MYCALESIS MINEUS, Linnæus. Pl. XII, Fig. 3.

The synonymy of this species when it comes to be fully set down (and unfortunately I do not possess the necessary material from extra-Indian sources to attempt the task) will be stupendous. In India this species is certainly represented by *mineus*, Linnæus ; *drusia*, Cramer ; *polydecta*, Cramer ; *justina*, Cramer ; *visala*, Moore ; and *indistans*, Moore ; the first four species representing ocellated forms, the last two non-ocellated forms.

Males of typical *M. mineus* can at once be distinguished by an ochreous or pale golden elongated patch on the underside of the forewing near the base of the inner margin of closely-packed scales placed on either side of the submedian nervure near its middle, which patch is widely surrounded by an area of shining very closely-packed darker scales ; a somewhat similar patch is also present on the upperside of the hindwing near the base of the first subcostal nervule. This patch is also found in typical *M. indistans* (and it is needless to state that it occurs also in *M. visala*, which is but a slight local variety of the latter form). In typical *M. blasius* and in its probably non-ocellated form *M. perseus*, these patches are very much smaller and black. Where these patches are well-marked and the characteristic markings occur with them, these two species, *mineus* and *blasius*, can be at once distinguished. But the identification of large series of specimens of this group of *Mycalesis* from various parts of India is complicated by this structural character appearing to be by no means constant, and moreover by the large yellow patch being sometimes associated with the markings of *M. blasius* and *M. perseus*, and the small black patch with those of *M. mineus ;* so that when an attempt is made to sort them into separate species by one character, an unnatural result is obtained. I wish here only to draw attention to these circumstances. My own belief is that hybridisation takes place extensively. In Calcutta I have not as yet met with any of these puzzling specimens, but such seem to occur commonly in other parts of India. Local breeding experiments should be carried out to decide the question.

I will now give the results of my breeding of this species. On September 1st I placed two female *M. mineus* in a breeding-cage with glass top and sides into which I had previously introduced a pot of growing grass. The same evening the insects laid about thirty eggs singly and in batches on both sides of the blades of grass indiscriminately. The eggs are almost white, shining, and semitransparent. On September 5th, the one female died, and her body on being opened was found to be quite empty and devoid of eggs. On September 6th, the other female died, and most of the eggs hatched. As usual the young larvæ made their first meal off the empty egg-shells. They are pale green with a black head bearing two very obtuse black horns on the crown, and with the caudal processes very small.

Down to the last change of skin, the larvæ are pale green without any conspicuous markings; after that change they become pale reddish, finely mottled with greenish, ochreous, and other colours, the general effect being somewhat that of the brownish colour of a grass stalk to which the bases of the dead leaves are still attached. At this stage, the larvæ remain chiefly amongst the bases of the grass stalks, where they are very difficult to be seen. When full-grown, they are about 1¼ inches long. The first segment is somewhat narrower than the head, the body gradually thickens to the middle, and then equally regularly and gradually tapers to the anal segment, which is furnished with two short, slightly divergent pointed processes or tails. There is a very faint greenish dorsal line, with about six obscure darkish oblique streaks at the sides, the four middle ones of which are the most prominent. The head is blackish, armed with two divergent, blunt, conical horns, which are obscure reddish like the body; both head and horns are thickly set with small rough tubercles, and the face is covered with short hairs. The whole of the body is very rough or rugose, and very thickly set with minute tubercles. The legs and underside of the body are coloured like the upper surface. The pupa is usually pale semitransparent green without markings, quite smooth, with the thorax very convex above and constricted at the base of the abdomen, and with the spiracles black. I obtained one differently coloured pupa: this was rich reddish-brown, with the spiracles prominently bright yellow. The larvæ turned to pupæ between September 28th and October 4th, and butterflies emerged between October 5th and October 12th,—it seems, unnecessary to record the exact dates. The imagines, though variable, were all nearer to *M. indistans* than to *M. mineus*, while the majority were true *M. indistans*.

Mr. Butler[*] appears to consider the non-ocellated form of *M. mineus* (*M. indistans*) as rare. In Calcutta it is far commoner than the ocellated form, the former occurring for about two-thirds of the year, but the latter for the remaining third only.

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[*] Proc. Ent. Soc. Lond. 1885, p. vi.

4. MELANITIS LEDA, Linnæus. Pl. XII, Fig. 4.

The synonymy of this species also will be vast when written in full, as not only must all the numerous forms of *M. ismene*, Cramer, be added to it, but also the numerous intergrade forms that have been described, including that latest bantling of Mr. Butler's, *M. determinata*,[*] which, even if the "lurid" *M. leda* should prove constant, must sink under the far older name *M. ismene*. Its range is enormous: it occurs in Eastern, Western, and Southern Africa both as true *leda* (as universally accepted) and as *banksia*, throughout Southern Asia, in the Pacific Islands, and in Australia. Whether it presents dimorphic forms throughout its range, I cannot say. The specific extent of the genus *Melanitis* must long remain in doubt, until, in fact, breeding experiments have been carried out extensively; but I believe that there are several good species in India alone, though how many I am not prepared to say: in Ceylon, for instance, *M. tambra* is probably distinct from *M. leda*, in Sikkim *M. zitenius* and *M. tristis* may be good species, and so on.

I did not keep a very exact record of dates in breeding this species, as the transformations, as stated above, had been previously recorded, but, from eggs laid by *M. leda* (= *determinata*, Butler) in August, I bred, on September 6th, a female *M. leda*, on the 7th, another female; on the 8th, two female *M. ismene*, one with distinct ocelli, and therefore an intergrade between *M. leda* and *M. ismene*, though nearer the latter; on September 9th, one male and two females of *M. ismene;* on September 10th, three males and four females of *M. ismene*, several of which are intergrades, and one male *M. leda;* on September 11th, two males and one female (the latter a highly ocellated specimen) of *M. ismene;* and on September 12th, one male of *M. ismene:* the total result being that from nineteen pupæ bred from eggs laid by true *M. leda*, I obtained three specimens (1 ♂, 2 ♀ ♀) like the mother, and sixteen specimens (7 ♂ ♂, 9 ♀ ♀) of *M. ismene*, several of which, though transitional forms, were yet all nearer to *M. ismene* than to *M. leda*.

My efforts to breed a second generation failed, all the specimens dying without coupling or laying eggs.

Captain Sage first observed a specimen of *M. ismene* on September 23rd, the only *Melanitis* seen by him for several months previously being *leda*.

To conclude, I would earnestly ask entomologists living in the tropics to devote as much time and attention as they can to breeding butterflies from the eggs at different seasons, but especially, if the seasons are strongly marked, at the commencement or at the end of each change. My experiments have as yet been applied to four species only, and I think I may safely say that the results to most entomologists are most unexpected. I could indicate many dozens of Indian species in which I believe this seasonal dimorphism to occur, embracing nearly every family into which butterflies have been divided, but I might be again accused of "guessing." The subject is a most interesting one, and I hope to revert to it again before long.

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[*] Ent. Month. Mag. vol. xxi, p. 246 (1885).

EXPLANATION OF PLATE XII.

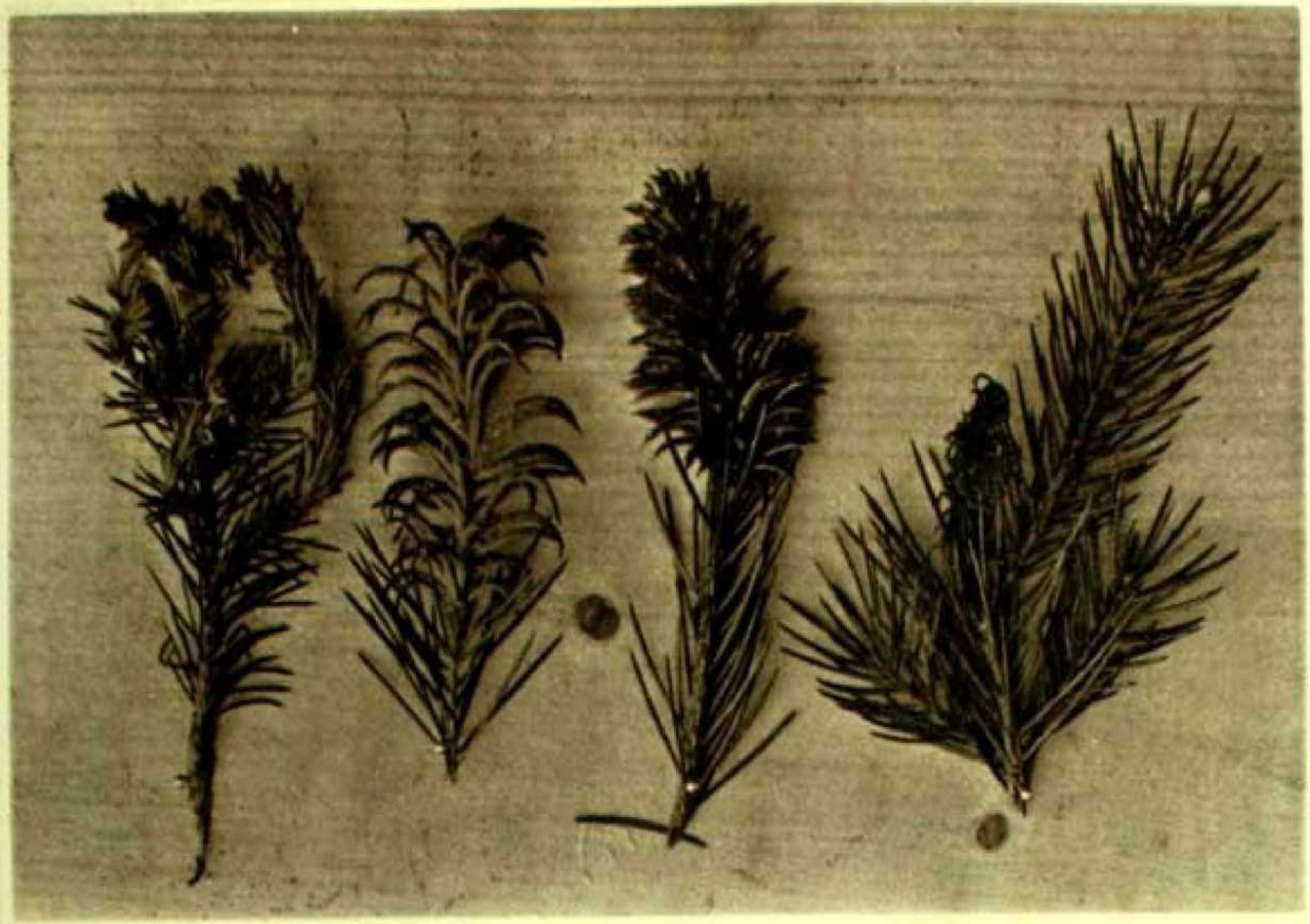
Fig. 1, Larva from above; 1 *a*, green pupa; 1 *b*, brown pupa; bred from eggs laid in captivity by true *Ypthima huebneri*.

Fig. 2, Larva from above; 2 *a*, pupa; bred from eggs laid in captivity by true *Ypthima philomela*.

Fig. 3, Larva from above; 3 *a*, green pupa; bred from eggs laid in captivity by true *Mycalesis mineus*.

Fig. 4, Larva from above; 4 *a*, front view of head of full-grown larva; 4 *b*, pupa; bred from eggs laid in captivity by true *Melanitis leda*.

A. BARCLAY, Journ. As. Soc. Bengal, 1886, Vol. LV, Pt. II. PLATE III.



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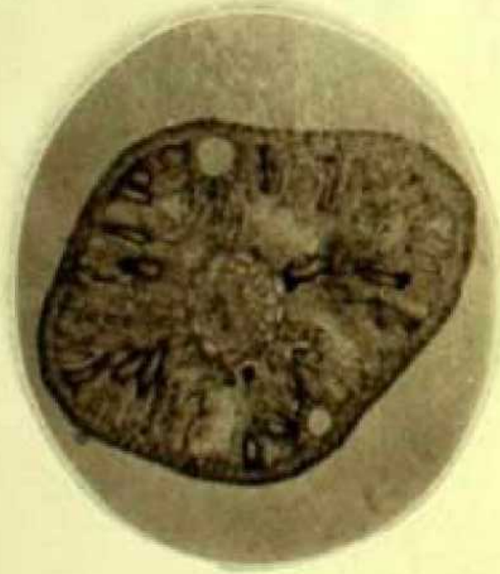

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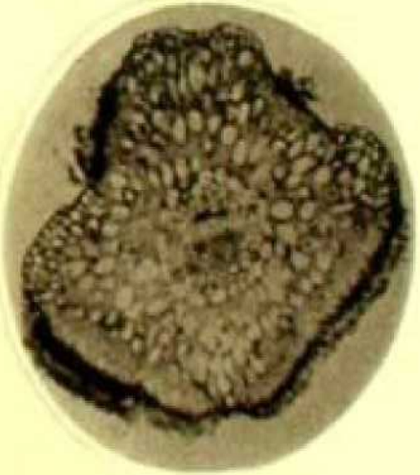

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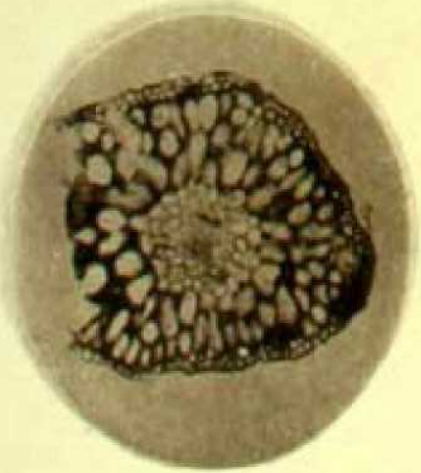

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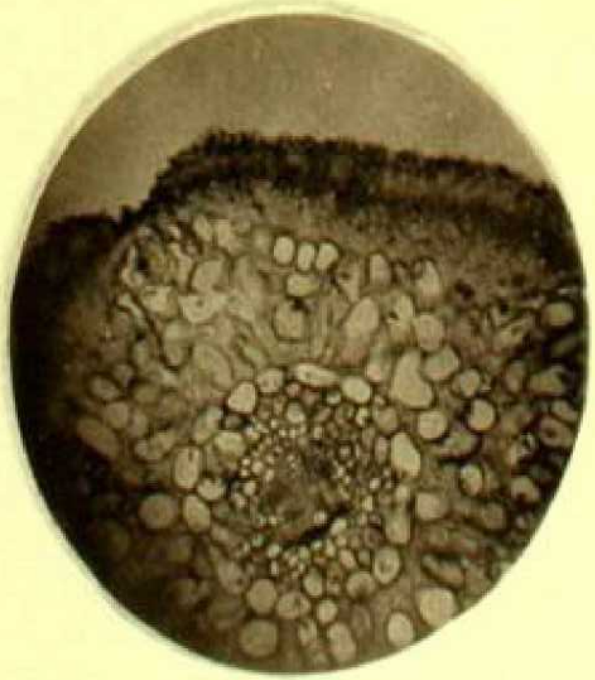

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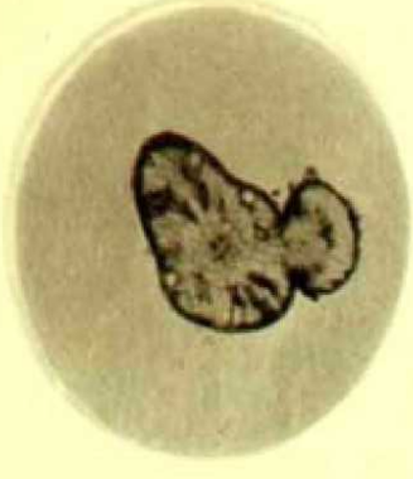

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Photo-Collotype

Survey of India Offices, Calcutta, April 1898

JOURNAL

OF THE

ASIATIC SOCIETY OF BENGAL.

Part II.—NATURAL SCIENCE.

No. III.—1886.

XI.—*Indian Ants of the Indian Museum, Calcutta. No.* 2.—*By* PROFESSOR AUGUST FOREL, *Zurich. Communicated by the* NATURAL HISTORY SECRETARY.

[Received May 20th ;—Read June 3rd, 1886.]

I. Subfamily **Camponotidæ**.

Genus CAMPONOTUS.

1. C. SYLVATICUS, Oliv., subsp. *C. cognatus*, Sm., var. c. Also found in Sibsagar (Assam) and in Sind.

2. C. MICANS, Nyl., ☿ and ♀. Variety of colour: the body, the legs, and the antennæ are partially or totally reddish brown or pale ferruginous. Sibsagar.

3. C. GIGAS, Latr. (Hist. nat. Fourmis), ☿. Johore, Malay Peninsula.

4. C. SEXGUTTATUS, Fab. (Ent. Syst. II. 354.)

Subsp. *C. exiguoguttatus*, n. st. This subspecies resembles also *C. cingulatus*, Mayr, but *cingulatus* has long, quite erect hairs on the tibiæ and scapi.

☿. Length 5. 3—8. 3 millims. Narrow, like the *C. sexguttatus*, i. sp., and *C. cingulatus*. Clypeus slightly carinate, very slightly and shortly lobate anteriorly, hardly emarginate in the middle of its anterior margin. Mandibles with 6 teeth, very delicately reticulate, with scattered puncture. Legs shining, very delicately reticulate, moderately flattened, but not prismatic; without prickles. The whole body opaque (the head anteriorly slightly shining), very finely and closely transversely wrinkled, microscopically rugged between the wrinkles; the head partly reticulate. A very scattered and large, often hair-bearing, puncture at the anterior and middle part of the head of the ☿ major. On the abdomen, the base of the hairs is rather raised. Longer and shorter, often undulating, yellowish erect hairs are scattered over the whole body; but the tibiæ and scapi are only shortly, thinly, and very obliquely pilose (pubescent). A quite applied grey-yellowish pubescence on the whole body, especially on the sides of the thorax, the coxæ, and the abdomen. This pubescence is longer and more abundant than in *C. sexguttatus*, i. sp.

Colour of the ☿ major: the abdomen yellowish, with the anterior part and a narrow transverse fascia by the posterior margin of each segment brownish. Thorax reddish yellow. Head yellowish or brownish red. The head is regularly sprinkled, especially behind, with extremely minute (nearly microscopical), round, brown spots like freckles. Legs and funiculi brownish or yellowish red; scapi and mandibles brown.

Colour of the ☿ minor: the abdomen differs only in having the three posterior segments entirely brownish. The rest of the body reddish brown, much darker than in the ☿ major. Head without freckles. Legs, antennæ, and mandibles brown.

♀. Length about 12 millims. Long, narrow, cylindrical. Scale of the petiole not emarginate. Resembles the ☿ major, but less opaque; the scutellum and abdomen are even moderately shining. Everywhere more or less delicately reticulate, hardly here and there finely wrinkled on the abdomen. Colour of the head, legs, and antennæ like that of the ☿ major; colour of the abdomen rather like that of the ☿ minor. Thorax and petiole yellowish ar brownish red. Sides of the mesothorax and metathorax, two lateral fasciæ on the mesonotum and its anterior part brown. Wings tinged with brownish yellow; veins and pterostigma brownish. Sibsagar (Assam).

This subspecies is very distinct from *C. sexguttatus*, i. sp., which besides inhabits South America. But I have lately (E'tudes Myrmécologiques en 1879) found the *C. extensus*, Mayr, from Australia, to be a subspecies of *sexguttatus*. In the very variable groups of *Camponotus sylvaticus*, *sexguttatus*, *herculeanus*, which are distributed over the whole world, it is better to reduce the number of "species" as much as possible, because these are not constant. According to Mayr (Ants of Turkestan), the *C. variegatus*, Smith (from Asia), is a variety of *C. sylva-*

ticus, which I have also described (l. c.). It is possible, however, that the true *C. variegatus*, Smith (Cat. Brit. Mus. p. 18), is more closely allied to *C. sexguttatus*, subsp. *exiguoguttatus*.

Genus POLYRHACHIS.

5. P. BIHAMATA, Drury (Ill. Nat. Hist. t. 2, pl. 38, 1770), ☿. Tavoy.

6. P. ARMATA, Le Guillou (Ann. Soc. ent. Fr. T. X. 1841) (= *Polyrh. defensus*, Smith, Cat. Brit. Mus. p. 62; = *Polyrh. pandarus*, Sm., l. c. p. 65), ☿ and ♀. Sibsagar (Assam).

Var. *minor* n. Length: only 7 millims. Abdomen bright rufo-ferruginous; legs brown; thorax and antennæ dark brown. In other respects like the typical form. Sibsagar.

7. P. SPINIGERA, Mayr (Verh. k. k. zool.-bot. Ges. Wien, 4 Dec. 1878). Sibsagar.

8. P. DIVES, Smith (Cat. Brit. Mus. p. 60) (= *acantha*, Sm., Proc. L. S. Z. V. 1860, p. 98, *sec.* Mayr), ☿. Sibsagar. The sole ☿ is a variety with the abdomen brown, the pubescence coarser and a little more fasciculate, the abdomen having coarser and more abundant raised wrinkles than the typical form. The pronotum a little broader anteriorly.

9. P. ACASTA, Smith (Proc. L. L. S. 1860, V. 100)? (perhaps = *argentea*, Mayr, Verh. zool.-bot. Ges. Wien 1862), ☿. The silvery pubescence is not dense. The spines of the metanotum are straight, divergent, twice as distant at the base as in *P. dives*, as long as the distance between their bases. Basal surface of the metanotum much broader than long (in *P. dives* longer than broad). Abdomen of the Sibsagar specimen brownish, legs reddish yellow with the coxæ, tarsi, and the base of the tibiæ blackish-brown. Length 5. 5 millims. Sibsagar.

10. P. FURCATA, Smith (Cat. Brit. Mus. p. 64), ☿. Variety with the abdomen black (rufo-testaceous in Smith's type). A very distinct, curious species, with the head and abdomen wholly smooth and shining, the thorax and petiole very coarsely, unevenly, and deeply reticulate (reticulate-punctate), the scale cylindric, much raised, bearing two long spines curved like chamois horns.

Smith's description is to be completed as follows:—

Thorax deeply emarginate between the mesonotum and the metanotum. Pronotum and mesonotum together strongly arched longitudinally and transversely. Basal surface of the metanotum very short. Clypeus carinate. Mandibles smooth and shining with scattered puncture. The whole body more or less covered with long, yellowish-white erect hairs and with a very scattered coarse pubescence. Tibiæ and scapi with long and perpendicularly erect hairs. Length 5. 5—6 millims. Sibsagar (Makes a nest in trees and is said to stridulate, but I have found no stridulating organs and suspect the insect merely scrapes dry leaves with end of abdomen.—Wood-Mason).

An aberrant specimen having the scale lower and more sqamiform, the scale-horns removed from one another and lowered towards the abdomen, the body more pilose, the thorax and the abdomen dark reddish-brown,—also comes from Sibsagar.

The *Polyrhachis furcata* belongs to the group "*armata*" of Mayr.

11. G. STRIATA, Mayr (Verh. k. k. zool.-bot. Ges. Wien 1862), ☿ and ♀. The hairs on the body are yellowish brown and not black as Mayr has stated. The ♀ is only 11 millims. in length, differing from the ☿ in having the abdomen very opaque, very closely punctured between the wrinkles; then the spines of the pronotum and the superior spines of the scale are shorter. The wings are wanting. Tavoy and Sibsagar.

12. P. MAYREI, Roger (Verzeichniss etc., Berl. ent. Zeitschr (1863).

Subsp. *P. intermedia*, n. st., ☿. Differs from the *P. Mayrei*, i. sp., in having only scattered erect hairs (the tibiæ and scapi have only a few very scattered erect hairs), the laminæ frontales more approximated, the abdomen brownish, with much less abundant gray (not golden) pubescence. The sculpture of the abdomen can easily be seen through the pubescence. Sibsagar.

This subspecies is allied to *P. proxima*, Roger (Berl. ent. Zeitschr. 1863), by its erect hairs and by its approximated laminæ frontales. But it differs from that species in the broadness and the stout form of its thorax (stouter than in *P. mayrei*, i. sp.), by its stout metanotal teeth, by the very distant superior spines of its broad scale, between which is a little tooth.

The *P. intermedia* induces me, however, to believe that the *P. proxima*, Roger, is also only a subspecies of *P. mayeri*. A specimen of *P. intermedia* has the abdomen black.

13. P. RELUCENS, Latr. (Hist. nat. Fourm.) ? DECIPIENS, Roger (Berl. ent. Zeitschr 1863) ? ♀. This ♀ cannot be more accurately determined without the ☿. Pegu.

14. P. LÆVISIMA, Smith, var. DICHROUS n., ☿. Differs from the typical form only in having the abdomen and the legs yellowish fulvaceous, with the antennæ and the anterior part of the head reddish brown. The rest of the body is black. Sibsagar.

N. B. The species *Polyrhachis affinis*, Le Guillou, according to Mayr (Formicidæ Borneenses, Ann. Mus. civ. Genova, 1872), is synonymous with P. *bihamata*, Drury. The name *Polyrhachis affinis* must therefore be restored to the *Polyrhachis vicina*, Roger (*vicina*, Roger, Verzeichniss, 1863, = *affinis*, Smith, Cat. Brit. Mus. 1858). Thus the last species must be called "*Polyrhachis affinis*, Smith (*nec* Le Guillou) = *P. vicina*, Roger."

Smith (Proceed. Lin. Soc., March 1863) has described two different species of *Polyrhachis*, *P. dolomedes* (No. 1, p. 14) ☿ and ♀ from Ceram and *P. dolomedes* (No. 2, p. 16) ☿ from Waigiou, under the same name! Analogous mistakes have been committed several times by Smith: for instance, in Journal Proceed. Lin. Soc. Suppl. Vol. V, pp. 104, 105, two quite different *Ponera simillima*, Smith, are to be seen: the one p. 104 = *Lobopelta diminuta*, Smith, and the other p. 105 = *Ponera affinis*, Roger (sec. Mayr, Verh. k. k. zool.-bot. Ges. Wien, 1862, and Roger Berl. ent. Zeitschr 1860). But the double *Polyrhachis dolomedes* is not yet corrected, and I propose to name the *P. dolomedes* No. 2, *Polyrhachis pseuadonyma*, n. sp., if this species is not synonymous with *P. xiphias*, Smith (l. c.)!

Genus Œcophylla.

15. Œ. SMARAGDINA, Fab., ☿ and ♀. Also found in Sibsagar, Pegu, Arrakan, and South Andaman Island.

Genus Myrmecocystus.

Wesmaël, Bullet. Acad. Roy. Bruxelles 1838, = *Cataglyphis*, Foerst., Verh. Nath. V. Rheinl 1850, = *Monocombus*, Mayr, Formicina Austriaca, Verh. z.-b. Ver. Wien, 1855.

16. M. VIATICUS, Fab. (Mant. Insect. sist. 1787), ☿. Kurhurbali. This Mediterranean species has hitherto been found to extend only as far as Persia and Turkestan, and is here recorded from India for the first time. The Indian specimens are typical, only a little more pubescent on the metanotum.

II. Subfamily **Dolichoderidæ**.

Genus Dolichoderus.

Lund, Annales des Sciences nat. xxiii, 1831 (Forel, Bullet. Soc. vaud. Sc. nat. vol. xv, 1878).

17. D. MOGGRIDGEI, n. sp., ☿. Length 2. 3 millims. Head short oval, broad, with very convex sides, very straitened behind, and there also semicircularly emarginate, about the neck of the pronotum. The posterior edge of the head, about the slope, is sharp, slightly raised, and nearly angle-shaped at both ends. Clypeus anteriorly with a deep, transverse, and curved impressed line, which runs from one anterior angle of the head to the other. The clypeus is very convex behind this impressed line. Frontal area and frontal sulcus indistinct.

Viewed from the side, the thorax ascends straight from the neck towards the middle of the mesonotum, this middle being the summit of an obtuse angle. From the middle of the mesonotum it descends again as far as the deep meso-metanotal strangulation. The middle of this descending surface is interrupted by the two protuberant stigmas. The basal surface of the metanotum is very abruptly ascending, hardly arched, and terminated behind by a transverse nearly rectilinear edge, which forms with the declivous surface a right or nearly acute angle. The declivous surface of the metanotum is plane above and concave below.

Viewed above, the pronotum is flattened, widened, trapeziform ; the mesonotum is elongate and has a strong longitudinal impressed line with two edging blunt elevations in the middle of its sides ; the basal surface of the metanotum is rectangular, longer than broad.

Scale raised, hardly inclined, moderately thick, evenly convex in front and behind, with the upper edge transverse and slightly rounded. The abdomen of the sole specimen is deformed.

Mandibles smooth aud shining with very scattered puncture. The whole body shining, especially the head. The head very delicately reticulate at the sides. On the anterior surface of the head, this sculpture passes into a very delicate scattered puncture, which replaces the reticulations. Thorax more or less delicately reticulate, except the declivous surface of the metanotum, which is smooth. Scale delicately reticulate or punctate. Abdomen with very delicate scattered puncture. No erect hairs. An extremely fine and much applied pubescence is scattered over the whole body, especially on the abdomen, on the scapi, and on the legs, where it forms a slight and delicate down.

Uniformly dark brownish or reddish yellow. Antennæ and legs clearer.

Gizzard (proventriculus) without sepals, of the same shape as in the other species of the genus *Dolichoderus*, for instance, very like that of *D. bispinosus*. I softened the abdomen in water, and was thus enabled to dissect out that organ without destroying the specimen. Sibsagar.

N. B. I have found the gizzard of *D. mariæ*, Forel, very like that of *D. 4-punctatus* of Europe.

III. Subfamily **Poneridæ**.

Genus PONERA.

18. PONERA LEEUWENHŒKI, n. sp., ☿. Resembles a little the *P. insulana*, Mayr, and *P. tesserinoda*, Mayr, but is quite distinct. Length: 7.5—8 millims. Mandibles shorter and broader than in *P. tesserinoda*, strongly striate, with scattered puncture above the striation, armed with 7 teeth.

A very distinct groove runs obliquely from the inner articular angle to the exterior edge of the mandibles (as in *P. tesserinoda* and *sulcata*). A much raised longitudinal carina in the middle of the clypeus (as in *P. insulana*), which is slightly acuminated or toothed in the middle of its anterior edge. Eyes smaller by half than in *P. tesserinoda*, situated on the anterior quarter of the sides of the head. Head broad, a little narrowed behind, and there broadly concave. The anterior edge of this concavity forms a right angle with the anterior surface of the head. The perpendicularly truncate posterior surface of the occiput is obliquely striate or wrinkled and shining. The sides of the head are more or less flattened and submarginate. Head longitudinally striate beneath, coarsely reticulate and finely granulate above (anteriorly). On the forehead and the cheeks the reticulations pass into longitudinal wrinkles.

Thorax moderately short; a lamelliform tooth at the anterior inferior angle of the pronotum. The meso-metanotal suture wholly obliterated. Declivous surface of the metanotum truncate, plane, oval, and margined by a small subdenticulate edge. This truncation is shining, transversely wrinkled below, the wrinkles being more effaced above. Pronotum semicircularly reticulate-rugose, mesonotum longitudinally so, both in addition with scattered and moderately effaced extremely coarse puncture. The basal surface of the metanotum with an extremely coarse and deep reticulate-punctate-rugose sculpture.

Scale like that of *P. tesserinoda*, but nearly twice as broad as thick. Its anterior and posterior surfaces are both truncate and transversely wrinkled. Its periphery has an extremely coarse and deep puncture, between which it is rugose. A rounded hump under the petiole.

Abdomen truncated anteriorly; the truncation shining and nearly smooth. The rest of the first segment reticulate-rugose (transversely so in front, longitudinally behind); besides, it is very coarsely scattered and effaced-punctured. The other segments of the abdomen are shining and delicately, more or less effaced reticulate-rugose (transversely so on the base, longitudinally so on the end of each), with scattered not coarse puncture. Legs and antennæ strongly punctured.

The spurs of all the legs pectinate. Some rare scattered erect hairs, especially on the tibiæ and scapi. A short, much spaced applied pubescence is scattered everywhere. This pubescence is extremely fine on the abdomen.

Brownish black. Abdomen dark reddish brown. Legs, antennæ, mandibles, *laminæ frontales*, and anterior edge of the head reddish. Sibsagar.

Genus BOTHROPONERA.

Mayr, Verh. k. k. zool.-bot. Ges. Wien. xii. 1862.

19. B. RUFIPES, Jerdon (Madr. Journ. Lit. & Sc. 1851, 119: *Ponera*), ☿. Sibsagar.

In the same box with *B. rufipes* (Sibsagar Assam $\frac{225}{1}$) is another *Bothroponera*, which differs from *B. rufipes only* in having two stout, blunt, triangular, and flattened spines at the metanotum. These spines, or lamelliform large teeth, have a posterior concavity, which is directly continued into the declivous surface of the metanotum and sharp edged in common therewith, whilst the anterior convex side is directly continuous with the basal and lateral surface.

This toothed *Bothroponera* agrees in every respect with the description of "*Pachycondyla (Bothroponera) bispinosa*, Smith" (Cat. Brit. Mus. p. 107); only the longer tooth at the lateral angles of the scale is wanting.

Now Mayr (Journ. Mus. Godeffroy Hamburg, XII, 1876, p. 32) has found that *Bothroponera piliventris*, Sm., an Australian species closely allied to *B. rufipes*, offers a very peculiar sort of dimorphism in the ☿, the first category of ☿ having a narrow and entire scale, the second a broad and emarginate one.

The toothed *Bothroponera* (*bispinosa*) from Sibsagar agrees so completely in every minute detail, except the teeth or spines, with *C. rufipes*, that I venture to suggest that the two belong to the same species and constitute a new case of dimorphism in the ☿ of ants, *P. bispinosa* being the dimorphic form of *P. rufipes*.

It is easy to confirm or to refute my supposition by the observation of the living colony, especially of the pupæ in the nests.

Genus ODONTOPONERA.

Mayr, Verh. k. k. zool.-bot. Ges. Wien, 1862.

20. O. DENTICULATA, Smith (Cat. Brit. Mus. p. 90), ☿. Sikkim.

Genus LOBOPELTA.

21. L. MUTABILIS, Smith (Proc. Lin. Soc. Zool. 1861, p. 15), ☿. Sibsagar.

22. L. WOOD-MASONI, n. sp., ☿. Resembles the *L. castanea*, Mayr, but very distinct by its large and wide strangulation between the mesothorax and the metathorax.

Length 6·2 mill. Long and narrow; the legs and especially the antennæ very long. Head oval. Eyes large, flat, situated at the anterior ⅓ of the head. The second joint of the funiculus longer than the first. Mandibles rather broad, striated; their terminal edge long sharp, with a pointed tooth at the end and an obtuse one at its posterior third. Clypeus very triangularly advanced, nearly acuminated, strongly carinate, longitudinally striated. *Laminae frontales* extremely short; *sulcus frontalis* broad and short. The sides and the anterior part of the head longtudinally striated. Vertex and occiput shining, nearly smooth. Mesothorax strongly strangulated after the mesonotum; the strangulation much widened. Mesonotum small and narrow. The basal surface of the metanotum narrow, rounded, as long as the pronotum and the mesonotum together. The declivous one moderately short, transversely wrinkled, rounded at the sides and above. The rest of the thorax is shining and nearly smooth, except the sides of the mesothorax and of the metathorax, which are more or less rugose. Scale raised, narrowed in front, smooth and shining, as long as the breadth of its posterior surface. Abdomen shining and nearly smooth, strongly strangulated after the first segment.

Here and there a few erect hairs on the legs, the scapi, and the under side of the body. Applied pubescence nearly totally wanting. Yellowish or reddish brown, darker over the head, the thorax, and the scale. Funiculi, tibiæ, and tarsi testaceous. Sibsagar.

N. B.—Smith (Trans. Ent. Soc. Lond. 1876, Part IV, 6 Sept.) describes a *Ponera castanea* from New Zealand and says that the genus *Ponera* had not been previously ascertained to inhabit New Zealand. Now Mayr had previously (Novara Reise, Formicidæ, p. 69, 1865) also described a *Ponera castanea* (!) from Auckland (New Zealand); but I cannot ascertain if *P. castanea*, Smith, and *P. castanea*, Mayr, are two different species or not.

V. Subfamily **Myrmicidæ**.

Genus SIMA.

23. S. RUFONIGRA, Jerdon, ☿. Also from Sibsagar.

Genus CAREBARA.

Westwood, Ann. & Mag. Nat. Hist. 1841, vi. 86.

24. C. LIGNATA, Westw. (l. c. ♀); Smith (Cat. Brit. Mus. ♂), ♀, Sibsagar, ♂ Pegu.

Genus APHÆNOGASTER.

Mayr, Verh. z.-b. Ges. Wien, 1853, = *Atta* autorum, *nec* Fabricii.

25. A. BARBARA, L. (Systema Naturæ I. 962 ☿).

Var. *semirufa*, André (Species d. Formic. d' Europe, 1881-82), ☿ West shore of Sea of Galilee.

Var. *punctata* n., ☿ media-major. Length 6·3 millims. Head smooth and shining with very scattered, but distinct and moderately coarse puncture, besides with some divergent effaced striæ. Pronotum and mesonotum rugose. Two elongate tubercles on the metanotum. Dark reddish brown. Abdomen dark chestnut-brown. In other respects like the other varieties. Kashmir.

The *A. barbara* is a very variable Mediterranean species and has hitherto been found as far as Asia Minor and Turkestan, but not in India.

Genus PHEIDOLE.

27. P. INDICA, Mayr, ♀. Also from Port Canning, near Calcutta.

Genus CREMASTOGASTER.

Lund, Ann. d. Sc. nat. 1881, 132, = *Acrocœlia*, Mayr, Verh. z.-b. Ges. Wien, 1852.

28. C. SUBNUDA, Mayr (Verh. k. k. z.-b. Ges. Wien, 4 Dec. 1878), ☿ *variety*. Differs from Mayr's description only in having the mandibles entirely striated, the funiculi not clearer than the rest of the antenna, the second node of the petiole entirely smooth, the spines of the metanotum slightly concave exteriorly, and in being longer (4 millim.). Sibsagar.

29. C. FLAVA, n. sp., ☿. Length 4·2—5 millims. Entirely of a pale yellow; only the posterior half of the abdomen with a brownish tinge. Slender; legs and antennæ rather long. Resembles a little the *C. rogenhoferi*, Mayr. The club of the antennæ 3-jointed. Mandibles closely striated. Head and thorax opaque. Head entirely longitudinally striated; its sides and posterior angles have besides a regularly spaced and rather coarse puncture. The striæ diverge towards the occiput, which has also sinuous, more or less transverse striæ.

Thorax rather narrow. Pronotum moderately flattened above, with the sides a little prominent. Mesonotum with two lateral carinæ, between which it is concave, a little enlarged in front, rounded at its anterior margin. Spines of the metanotum little divergent, moderately convex exteriorly, a little shorter than the interval between their bases. The declivous surface of the metanotum smooth, shining, much longer than the basal one. The rest of the thorax longitudinally rugose and delicately reticulate-punctate between the wrinkles.

The first node of the petiole viewed from above, as in *C. rogenhoferi*, flattened, broad, with a semicircular anterior edge, which is terminated by two angles at the middle of the sides. From these angles, each posterior half of the sides is concave and converges strongly towards the posterior edge, where it is terminated by a little protuberance. The posterior edge is emarginate between these protuberances. The second node is longitudinally and broadly, but not very deeply sulcated in the middle (the sulcus is deep in *C. dohrni*, Mayr, and *rogenhoferi*, Mayr). Petiole and abdomen shining and delicately reticulate; some longitudinal wrinkles on the second node.

Some erect hairs on the thorax and on the head, very few elsewhere, none at all on the tibiæ and scapi. A spaced, but regular, applied pubescence on the tibiæ, the scapi, the head, and the abdomen, very scattered elsewhere. Sibsagar.

XII.—*On some New Indian Butterflies.*—*By* Lionel de Nice'ville, F. E. S.

[Received 23rd April;—Read June 2nd, 1886.]

(With Plate XI.)

Family NYMPHALIDÆ.

Subfamily Satyrinæ.

1. Lethe brisanda, n. sp., Pl. XI, Fig. 13, ♀.

Description. Female. Upperside, *both wings* castaneous. *Forewing* with rather more than the outer half fuscous, crossed from the middle of the costa to near the anal angle by a decreasing white band, which is tinged with ochreous anteriorly, its inner edge very straight and sharply defined, its outer edge less regular and blurred; two small ochreous subapical spots divided by the fifth subcostal nervule. *Hindwing* with the outer half fuscous, bearing a submarginal series of four black spots placed upon a castaneous band, the upper one large and round, the second in the subcostal interspace somewhat quadrate and extending to the inner of the two pale marginal fine lines, the third and fourth in the median interspaces small and oval; there are faint traces also of a spot in the discoidal and a geminated one in the submedian interspace. Underside, *both wings* pale ochreous-brown. *Forewing* with two ferruginous fine lines crossing the middle of the cell, the discal band as above but somewhat lengthened posteriorly, the ground-colour within it somewhat darker than the rest of the wing, a submarginal series of four small perfect ocelli placed between the veins, made up of a white pupil, a black ring, a ring of the ground-colour, a ferruginous ring, and an outer pale ring; two fine dark marginal lines. *Hindwing* with two discal fine irregular ferruginous lines from the costa to the submedian nervure, the lower disco-cellular nervule defined with ferruginous; a submarginal series of six perfect ocelli, made up of a black white-pupilled centre, then an ochreous, then a dark brown, and lastly an outer violaceous ring, the upper ocellus much the largest, the second and fourth subequal, as are also the third and sixth which are the smallest, the latter twinned; two fine dark marginal lines inwardly defined by a pale violet line and enclosing a fine ochreous line. *Cilia* pale brown throughout.

EXPANSE: ♀, 2·35 inches.

HAB.—Buxa, Bhutan.

Nearly allied to *Lethe dinarbas*, Hewitson, the female of which has not hitherto been figured or described, from which it differs on the upperside in having the ground-colour castaneous instead of pale brown, the discal band straighter and better defined, the ocelli on the hindwing smaller and blind; on the underside the ground-colour in *L. brisanda* is ochreous, in *L. dinarbas* it is pale brown washed with violascent, the forewing has four ocelli owing to the discal band being narrower, in *L. dinarbas* there are three only, on both wings in the latter the discal narrow lines are dark brown instead of ferruginous and broader and more regular. *L. brisanda* is nearly allied also to *L. hyrania*, Kollar, from which the castaneous ground-colour of the upperside and the much narrower discal band on the forewing will readily distinguish it.

A figure of *L. dinarbas*, female, is given (fig. 4) from a specimen from Native Sikkim in Mr. Otto Möller's collection.

The type and only known specimen of *L. brisanda* is in the collection of Mr. A. V. Knyvett, to whom I am indebted for the opportunity of figuring and describing it. The male has yet to be discovered: it will probably prove to be closely allied to *L. dinarbas*, which also occurs at Buxa, and to *L. hyrania*.

Subfamily NYMPHALINÆ.

2. NEPTIS KUHASA, n. sp., Pl. XI, Fig. 12, ♂.

DESCRIPTION. MALE. UPPERSIDE, *both wings* black with orange markings. *Forewing* with a broad discoidal streak bounded below by the median nervure, obscurely separated from the large triangular spot beyond by two fine black lines; a broad subapical patch well-separated from a rather less broad discal one which reaches the inner margin, and is strongly constricted at the first median nervule; a prominent submarginal somewhat lunate band, with a very obscure and fine pale marginal line. *Hindwing* with a broad straight even discal band, and a narrower (about one-third the width) submarginal similar band; marginal line as in forewing. UNDERSIDE, *both wings* with the ground-colour much paler, and the bands also paler, ochreous rather than orange. *Forewing* marked as above. *Hindwing* with an additional ochreous band at the base of the costal margin, the discal and submarginal bands broader (much reducing thereby the width of the band of the ground-colour between them), the outer margin broadly fuscous bearing a prominent ochreous line. FEMALE, *both wings* slightly paler. *Forewing* with the apex less produced. *Hindwing* with the discal band narrower, the submarginal band wider than in the male. UNDERSIDE with the same differences as above.

EXPANSE: ♂, 1·9; ♀, 2·0 inches.

HAB.—Cachar.

N. kuhasa differs from Upper Tenasserim specimens of *N. sattanga* in both sexes in the submarginal band on the upperside of the hindwing being narrower; the band of the ground-colour on the underside of the hindwing between the discal and submarginal ochreous bands is twice as wide, and in addition the outer margin of that wing is broadly fuscous, bearing a prominent ochreous line. In *N. sattanga* the margin is equally broadly ochreous inwardly bounded by a narrow black line, the extreme margin being defined by a very fine black line.

Mr. Wood-Mason took one male on the 29th July, and two females on the 8th August at Irangmara in Cachar, which specimens are now in the Indian Museum, Calcutta.

3. NEPTIS BURMANA, n. sp., Pl. XI, Fig. 9, ♂.

DESCRIPTION. MALE. UPPERSIDE, *both wings* black with prominent pure white markings. *Forewing* with the discoidal streak narrow, deeply indented at the end of the cell; the discal series of spots large and well-separated, the submarginal macular band distinct, with a pale line on either side. *Hindwing* with the discal band somewhat broad, straight, and even, followed by a pale line, the submarginal white macular band prominent, with a pale line beyond. UNDERSIDE, *both wings* dull ferruginous. *Forewing* with the triangular spot less prominently separated from the discoidal streak beyond, and the pale lines on either side of the submarginal macular band more distinct. *Hindwing* with a broad white basal band, two marginal white lines (there is only one pale line on the upperside), other markings as above.

EXPANSE: 2·4 inches.

HAB.—Upper Tenasserim.

Nearest to *N. cartica*, Moore, from which it differs on the upperside in having all the markings prominent and pure white; in *N. cartica* the markings are all obscure and tinged with fuliginous, except the discal band of the hindwing and the four spots on the forewing in continuation, which are white; the submarginal band also on the hindwing is more macular in *N. burmana;* and on the underside there are two marginal lines on the hindwing, in *N. cartica* there is only one, whereby the width of the band of the ground-colour between the discal and submarginal bands in that species is increased.

There are two male specimens of *N. burmana* in Major Marshall's collection, both taken by Captain C. T. Bingham, one in the Donat range in January, the other at Sekkan, Thoungyeen, in February.

Family LEMONIIDÆ.

Subfamily NEMEOBIINÆ.

4. ABISARA CHELA, n. sp., Pl. XI, Fig. 7, ♂.

DESCRIPTION. MALE. UPPERSIDE, *both wings* dark fuscous brown. *Forewing* with an oblique white discal band from the middle of the costa to about the middle of the submedian interspace, variable in width; a submarginal narrow white line, sometimes distinct throughout its length, at others blurred in the middle, but always ending in a distinct white spot at the costa; one or two short fine marginal white lines at the anal angle. *Hindwing* with two submarginal rounded black spots divided by the discoidal nervule, the upper one the smaller and outwardly circled with white, the lower one marked anteriorly and posteriorly with white; the outer portion of the discoidal and third median nervules orange; three somewhat indistinct black lunular spots on the margin in the median and submedian interspaces, inwardly defined with a pale line, the spot in the submedian interspace geminated; two fine interrupted white marginal lines; tail short and marked with white; an ill-defined discal pale band, inwardly sharply defined, outwardly blurred. UNDERSIDE, *both wings* much paler, all the markings more distinct. *Forewing* with the discal and submarginal bands much broader than above, the latter always well-marked throughout its length. *Hindwing* marked as above, but the space from the discal band to the margin irrorated with white, the outer portion of all the veins orange. FEMALE. UPPERSIDE, *both wings* paler than in the male, tinged throughout with ferruginous, the veins of the *hindwing* more broadly marked with orange. UNDERSIDE with the same differences as above.

EXPANSE: ♂, 1·75 to 1·90; ♀, 1·90 inches.

HAB.—Sikkim, Sylhet.

Allied to *A. neophron*, Hewitson, which occurs in the same places with it, and in Sikkim in the same months; differs from it in its smaller size, usually broader discal band on the forewing, the submarginal line usually more prominent, and always ending anteriorly in a white spot, which is never the case in *A. neophron*; markedly also in the length of the tail, this part being fully twice as long in *A. neophron* as it is in *A. chela*. Through the kindness of Mr. Otto Möller I have examined a long series of both species from Sikkim, and find that the differences given above are constant. He first recognized and pointed out to me the distinctness of these two species. For comparison I have figured (fig. 8) the upperside of a male specimen of *A. neophron* from Sikkim.

Family LYCÆNIDÆ.

5. ALLOTINUS MULTISTRIGATUS, n. sp., Pl. XI, Fig. 11, ♂, 2, ♀.

DESCRIPTION. MALE. UPPERSIDE, *both wings* dark brown. *Forewing* with a pale brown elongated patch in the middle of the disc. *Hindwing* unmarked. UNDERSIDE, *both wings* pale ochreous brown, covered (except the inner margin of the forewing) with hundreds of very minute spots made up of a dark brown centre and fine outer pale line. *Forewing* with three similar but larger discoidal spots, and a fourth below the middle one in the submedian interspace at the point where the first median nervule is given off; a similar submarginal series. *Hindwing* crossed by four almost equi-distant series of similar spots. *Cilia* pale brown throughout. FEMALE, differs in having the forewing more truncate and the hindwing more deeply scalloped than in the male. UPPERSIDE, *forewing* with the discal patch very prominent and pale ochreous, the basal half of the costal margin narrowly pale ochreous, with four short streaks beyond. *Cilia* pale ochreous. Otherwise as in the male.

EXPANSE: ♂, 2·1; ♀, 2·0 to 2·1 inches.

HAB.—Kumaon, Sikkim, Chittagong.

In collections W. Doherty from Kumaon and Chittagong; Colonel A. M. Lang, R. E., Otto Möller, and A. V. Knyvett from Sikkim. Quite different from any species known to me.

6. SATADRA TEESTA, n. sp., Pl. XI, Fig. 3, ♂.

DESCRIPTION. MALE. UPPERSIDE, *both wings* of a very deep purple, of a deeper shade than in any species of the group known to me. *Forewing* with a very narrow black marginal line. *Hindwing* with the black marginal line much broader than on the forewing; tail black, tipped with white. UNDERSIDE marked almost exactly as in *S. singla*, mihi.

EXPANSE: ♂, 1·8 inches.

HAB.—Sikkim.

Nearest to *S. singla*, from which it differs in the forewing being shorter and truncated instead of produced at the apex, the marginal black line only a quarter as broad, the colouration of both wings on the upperside of a deeper shade of purple. Obtained in the Teesta Valley, Sikkim, by Mr. Otto Möller, in whose collection the type specimen is deposited.

Family PAPILIONIDÆ.

Subfamily Papilioninæ.

7. Papilio paphus, n. sp., Pl. XI, Fig. 6, ♂.

Description. Male. Intermediate between *P. glycerion*, Gray, and *P. tamerlanus*, Oberthür. Differs from the former in being larger, the forewing less profusely marked with black on the outer margin, both above and below, the hindwing having the disc crossed by a narrow black line which is joined posteriorly to a continuous subbasal line, the wing membrane between the discoidal nervule and the anal angle much broader. On the underside of the hindwing there is in *P. paphus* a series of six elongated streaks of the ground-colour divided by the nervules, from the costal nervure to the first median nervule outside the cell, these streaks being much shorter in *P. glycerion*, the ones in the costal, subcostal, and second median interspaces of that species being divided in the middle by a black bar into two spots, the anterior one in each instance being yellow, in *P. paphus* they are undivided and concolourous with the ground throughout. It differs from *P. tamerlanus* on the upperside (no figure is given of the underside of that species nor any detailed description) in having the two black bands at the end of the cell of the forewing parallel and conjoined in the middle as in *P. glycerion*, the black bands of the hindwing much less prominent. It is also a smaller insect, but agrees with it in the rounded apex of the forewing, and the width of the wing-membrane at the anal angle of the hindwing.

Expanse: ♂, 3 inches.

Hab.—Sikkim.

P. glycerion has a very wide range, occurring as far west as Simla at any rate, probably throughout the Himalayas eastwards, and in China. *P. tamerlanus* was described from Moupin, Western China, *P. paphus* is known to occur as yet only in Sikkim, specimens of it (including the type) are in Mr. Otto Möller's collection, also in that of Mr. A. V. Knyvett. For comparison, I have figured (fig. 5, ♂) the underside of a specimen of *P. glycerion* from Sikkim.

Family HESPERIIDÆ.

8. Halpe gupta, n. sp., Pl. XI, Fig. 1, ♂.

Description. Male. Upperside, *both wings* dark brown. *Forewing* with two small spots in the cell placed obliquely one above the other, obsolete in one specimen, two or three conjoined subapical minute spots, two on the disc divided by the second median nervule. *Hindwing* with some long ochreous hairs in the middle of the disc. Underside, *forewing* with the costa and apex diminishing towards the anal angle, and the whole of the *hindwing* clothed with greenish-ochreous scales. *Forewing* marked as above. *Hindwing* wlth two or three small pale opaque spots on the disc. *Cilia* cinereous, tipped with darker at the end of the nervules.

EXPANSE: ♂, 1·4 to 1·5 inches.

HAB.—Sikkim.

Near to *H. kumara*, mihi, differs somewhat in shape, the forewing being narrower and more produced at the apex, the subapical spots smaller. On the underside in *H. gupta* there are some pale spots on the disc of the hindwing, which are absent in *H. kumara*. The shade of the ground-colour is also quite different: in *H. kumara*, it is golden brown, in *H. gupta*, greenish-ochreous. The sexual mark is rather prominent. Mr. Otto Möller has obtained several male specimens in Sikkim.

9. PAMPHILA AVANTI, n. sp., Pl. XI, Fig. 10, ♂.

DESCRIPTION. MALE. UPPERSIDE, *both wings* fuscous. *Forewing* with a broad oblique subbasal streak, a more irregular and broader discal streak, both commencing close to the costa and extending to the submedian nurvure where they are joined, and a subapical streak, which joins the discal one, all yellow. *Cilia* very long and brown. *Hindwing* with a large irregular-shaped spot in the middle of the disc, with two very small and indistinct ones placed outwardly beyond it. *Cilia* pale yellow. UNDERSIDE, *both wings* much paler, ferruginous-ochreous on the hindwing; a dark ante-ciliary line. *Forewing* with the yellow markings much as above but paler and more extended. *Hindwing* with the discal spot larger and silvery-ochreous, with a small spot in the cell near the base and another of the same size beyond the outer end of the large discal spot, a lengthened pale ochreous abdominal streak. *Antennæ* short, with a prominent club, the shaft and club fuscous above, the club tipped with ferruginous below, and the shaft pale ochreous.

EXPANSE: ♂, 1 inch.

HAB.—Native Sikkim.

There are two specimens of this very pretty and distinct species in Mr. Otto Möller's collection, obtained by his native collectors probably at high elevations in Sikkim near the passes. It is unlike any hesperid known to me.

EXPLANATION OF PLATE XI.

Fig. 1. *Halpe gupta*, n. sp., ♂.
 2. *Allotinus multistrigatus*, n. sp., ♀.
 3. *Satadra teesta*, n. sp., ♂.

Fig. 4. *Lethe dinarbas*, Hewitson, ♀.
5. *Papilio glycerion*, Gray, ♂, underside.
6. „ *paphus*, n. sp., ♂, underside.
7. *Abisara chela*, n. sp., ♂, upperside.
8. „ *neophron*, Hewitson, ♂, upperside.
9. *Neptis burmana*, n. sp., ♂.
10. *Pamphila avanti*, n. sp., ♂.
11. *Allotinus multistrigatus*, n. sp., ♂.
12. *Nephis kuhara*, n. sp., ♂.
13. *Lethe brisanda*, n. sp., ♀.

XIII.—*Additional Notes on new or rare Indian Butterflies.—By* WILLIAM DOHERTY, *Cincinnati, U. S. A. Communicated by the* NATURAL HISTORY SECRETARY.

[Received April 23rd;—Read June 2nd, 1886.]

Family DANAIDÆ.

1. EUPLŒA (TREPSICHROIS) KALINGA, n. sp.

♂. Differs from the male of *midamus*, Linn. (*linnæi*, Moore), only in the less brilliant blue of the forewing, with its spots larger and more distinctly white; and in the smaller male patch of the hindwing, extending neither to the apex of the cell nor to the lower median branch. ♀. Almost indistinguishable from the male, except in the absence of the male patch and the presence of a line of obscure whitish submarginal dots on the hindwing. A few paler streaks are usually visible on the disc of the hindwing subapically, but the cell is in all my specimens immaculate, a character in which it differs from all its allies.

I found this butterfly common on Mahendragiri and other mountains of the Ganjam District and in the Potingi Pass and the neighbouring country in the Vizagaptam district, Madras Presidency, and in the adjoining native state of Jaipur. I also saw a specimen flying in Orissa, near the southern boundary of that province. It probably represents *midamus* throughout the main line of the Eastern Gháts from the Godávari to the Mahánadi.

2. EUPLŒA (TREPSICHROIS) MIDAMUS, Linn.

One female taken by me in the Nicobars, on the island of Bompoka or Páhat, the most beautiful of that beautiful cluster of islands.

3. DANAIS (TIRUMALA) GAUTAMOIDES, n. sp.

♂, ♀. Differs from *gautama*, Moore (Arakan, Chittagong, and Tenasserim), in the whiter hyaline markings, all obscurely edged with dark on the underside, and in the deeper brown of the underside. The hyaline mark at the base of the cell of the forewing is bifid as in *gautama*, but the upper branch is the shortest, and is remote from the mark at the end of the cell, the latter being shaped as in *septentrionis*, but less oblique. The cell of the hindwing is usually cleft in three parts by slender black lines. Expanse 82 millimetres.

Apparently an insular representative of *gautama ;* somewhat transitional to *limniace*. Common in the Southern Nicobars—Great and Little Nicobar and Kondul. It seems to be mimicked by *Radena nicobarica*, Wood-Mason and de Nicéville, which I have often taken in company with it. The closely allied *limniace* is common in Kar Nicobar, Teressa, Bompoka, Camorta, and Nancowry, but I have never found it in the southern islands of the group, where *gautamoïdes* abounds.

Family SATYRIDÆ.

4. MYCALESIS (VIRAPA) MANII, n. sp.

♀. Fuscous, white band of the forewing wider than in any allied species, and almost crossing the apex. Hindwing unmarked except by two submarginal lines obscurely darker. *Below* paler brown, a broad dull violet band across disc of hindwing, unmarked with white, its inner border nearly straight. This band is obscurely visible on the lower part of the forewing, not extending to the white band, below the white band one large ocellus, above it two apical ocelli set obliquely, the upper many times the larger, the ochreous rings of the two confluent. *Hindwing* with seven ocelli, the fourth blurred, the third smallest, the fifth as large as all the others united. Margin with an ochreous brown, and an obscure violet line bordered by dark lines. Cilia dark. The absence of the ocellus on the forewing above, and the violet band of the underside unmarked with white distinguish *manii* from the female of the Andamanese *radza*. From the female of the wet-season brood of *anaxias* (India) it differs on the underside in the uniform paler and more ochreous brown of the base ; in the great breadth of the white band which extends almost to the end of the cell ; in the very unequal ocelli, in the absence of the lilac gloss discally and submarginally ; and in the darker apex, and obsolescent discal band of the forewing. Expanse 57 millimetres.

One female, Gonyi, Great Nicobar ; two females, Ikuya, Little Nicobar ; male not taken.

But for the differences in the venation I should have supposed *manii* identical with *anaxioides*, Marshall. I name this species for Mr. E. H. Man, Superintendent of the Nicobars, to whose kindness I owe the exceptional facilities which I enjoyed for visiting the islands under his charge.

Family APATURIDÆ.

Subfamily KALLIMINÆ.

5. DOLESCHALLIA POLIBETE, Cramer.

Kar Nicobar not common, probably an immigrant from the Andamans.

Subfamily ARGYNNINÆ.

6. CIRRHOCHROA NICOBARICA, Wood-Mason and de Nicéville.

♀. Differs from male in being duskier basally on the hindwing within the continuous discal black striga. Below paler, more ochreous, less ferruginous, more tinged with blackish, all the marks more distinct, the discal pale band of the hindwing wider, that of the forewing obscurely visible, very wide, bordered inwardly, and at the lower end outwardly, by a distinct reddish fascia, the submarginal fasciæ of the forewing more distinct than in the male, and the bent blackish line apically on the costa of the male absent. Great and Little Nicobar.

Subfamily APATURINÆ.

7. CYRESTIS TABULA, de Nicéville.

♀. Differs from the male in being white below instead of pale orange-ochreous; above it is only slightly tinged with ferruginous, and is somewhat like *thyodamas* except that the lighter spaces are heavily clouded with gray. When flying it more resembles the white Indian species *thyodamas* for which I at first mistook it. The male of the same species. Great Nicobar.

8. APATURA (or HYPOLIMNAS) MISIPPUS, Linn.

A male from Mount Harriet, near Port Blair, Andaman Islands. I have both sexes from Kar Nicobar, the female being as usual a mimic of *Danais chrysippus*.

YOMA, n. gen.

Resembles *Eurhinia*, Felder (*Rhinopalpa*) in the shape of its wings, and has the costa of the forewing similarly indented at the base. The hindwing, however, has but one lobe at the anal angle (two in *Eurhinia*), and is tailed at the upper median instead of the radial vein; its abdominal margin is less excavated. The outer border of both wings is straighter, and the forewing is not produced at the end of the lower median. Unlike *Eurhinia* the cell is closed in both wings; the first subcostal of the *forewing* is given off at one-sixth before the end of the cell, the second at two-thirds thence to the end of the cell, the third (which extends to the costa) at more than one-third between the cell and the apex, opposite the end of the first subcostal; the fourth and fifth bifurcate halfway thence to the apex. Upper disco-cellular distinct, very short, middle strongly angled inwardly, one-third above its lower end, lower slender, slightly concave, half again as long as the upper, reaches the median just beyond its last bifurcation. *Hindwing* with the præcostal vein slightly bifid, the cell closed by a slender vein somewhat bent inwardly, joining the costa considerably *before* the separation of its two upper branches. The radial is more curved than in *Eurhinia*, the internal short, = less than half the abdominal margin. The antennæ are slender and have about 51 joints, of which the club, which is small and cylindrical, has fourteen. The palpi are long and raised above the head, the last joint long and straight. The feet seem to have four claws.

The genus is rather close to *Apatura (Hypolimnas)*, but the forewing is sharply angled at the end of the fifth subcostal, and the hindwing at the upper median branch. The disco-cellulars of both wings are very different from those of *Apatura*, and the forewing is indented at the base of the costa (as in *Eurhinia* and *Grapta*). The disco-cellulars also distinguish it from *Dichorrhagia*, which in venation comes nearest to it among Indian butterflies. From *Vanessa* and allied genera it differs in the short, broad cell of the forewing, with its deep, acute upper angle more remote from the base than the lower one.

As I have never seen *sabina*, I take *vasuki* for the type of the genus.

9. YOMA VASUKI, n. sp.

♂, ♀. Deep fuscous above with two obscure darker submarginal lines. Cilia whitish, anal angle irrorated with gray, obscure darker lines across the cell above and below. A broad band of pale reddish-ochreous crosses both wings discally, somewhat bent inwardly near the costa of the forewing, where it is cut by the dark subcostal vein. A series of three apical ochreous spots, the middle one distinct, the outer ones small and obscure. Two small white spots on the outer disc between the middle median and the lower radial, present in both sexes. On the hindwing, unlike *sabina*, the band is immaculate and narrows greatly in its lower portion, not approaching the abdominal margin. An obscure ocellus visible in some specimens on the hindwing outside of the band. *Below* the butterfly resembles a dry leaf; the prevailing colour is ashy gray with a faint silky gloss; the band of the upperside is faintly visible through the wing as a paler fascia, the two white dots more distinct, forming part of a discal line of black dots set in reddish irides, obscurely visible on both wings though obsolescent on the forewing; near the lower angle of which it includes a distinct and much larger black spot. Except in the breadth of the wings the sexes do not differ.

Egg very nearly as high as wide, spherical, slightly flattened above and below, shining green, with eleven or twelve slender radiating ribs meeting above.

Seen from the side, uncus strongly bent downwards, slender, with two very broad moveable wings, clasps deeply bifid.

I found it flying rather commonly in the open country at the foot of the Arakan Yoma near Sandoway, Arakan. It has the habits of *Apatura (Hypolimnas) misippus.* There are specimens (males only) in Major Marshall's collection and in that of the Indian Museum, labelled "Rangoon."

The allied *sabina*, Cramer, from Amboyna and Java, has according to Cramer and Godart the white discal spots of the forewing present only in the female. The ochreous band is very broad in both sexes, extending according to Godart, to the anal angle, and is marked with one or two black discal spots.

10. EURIPUS CONSIMILIS, West.

A male and a female, 5,000 feet, Potingi Peak, Eastern Ghâts, in the Vizagapatam District. They differ considerably from Himalayan specimens, and are perhaps somewhat transitional to the rare *meridionalis* from Travancore.

Family NYMPHALIDÆ.

11. PARTHENOS LILACINUS, Butler.

Great Nicobar, scarce.

Family LYCÆNIDÆ.

Subfamily THECLINÆ.

12. MYRINA (PURLISA ?) DONINA, Hew.

Sirtai Mountain, Lushai country, near the frontier of the Chittagong Hill Tracts, rare.

13. BIDUANDA LAPITHIS, Hew.

Barakhal, Chittagong Hill Tracts. My specimens do not agree very well with Hewitson's and Distant's figures and descriptions of Malaccan specimens.

Subfamily DEUDORIGINÆ.

14. DEUDORIX BARTHEMA, Distant.

Dimagiri and Barakhal, Chittagong Hill Tracts. The yellow colour of the underside of the female, which is not uncommon in the Chittagong

Hill Tracts, varies greatly in different specimens. I suspect that the male will be found to be of the usual dull rufous hue of below, characteristic of the group, and will perhaps be difficult to distinguish from some well-known species.

Subfamily LYCÆNINÆ.

15. CASTALIUS MANLUENA, Felder.

Allied to *roxus*. ♂. Black, tip of tails white, and a slender marginal white line on hindwing, broken at the veins. Both wings with a broad white discal band, extending on the forewing from the hind-margin to above the lower radial, just entering the cell, at the end of which it is strongly indented from above; prolonged outwardly between the upper medians. On the hindwing it is broad, strongly produced outwardly, acutely indented inwardly. *Below, forewing*, ground white, base dark with a white longitudinal line close to the costa: a black mass extending obliquely from the base and the hind margin to the middle of the costa, where it joins a broad black subapical area which extends thence to the middle median branch, there it is connected (slightly) with the broad submarginal dark band, and with an outer discal dark area lying between the upper median and the hind-margin. *Hindwing* with a basal black mass untouched with white, and a discal band, irregular but unbroken, crossing the wing, and a submarginal line of wide, joined black lunules uniting at the apex with the discal band. Expanse 26 millimetres.

A male taken by me at Ikuya, Little Nicobar. The prehensores are quite distinct from those of the next species. The species is without metallic markings either above or below. Felder's female, with which this male seems conspecific, is as he remarks distinguished from *roxus* and allied species by the absence of all white at the base of the costa of the hindwing below. This also distinguishes it from *airavati*. The unbroken transverse discal band of the hindwing distinguishes the two Nicobarese species from all others. The female has, according to Felder, white marginal spots on both (?) wings above.

16. CASTALIUS AIRAVATI, n. sp.

♂. Allied to *ethion*. *Above*, light, shining blue, the outer borders of both wings broadly, and the costa of the forewing narrowly black. A white band crosses both wings. On the forewing its upper part is wide, centering between the upper median and the lower radial branches; thence to the hind margin it is slender and almost obsolescent; on the hindwing it is narrow and angular. *Below*, ground ochreous-white (white in *ethion*), pure white on the lower part of the forewing. It differs from *ethion* below in the increased size of all the black markings. The transverse discal band across the hindwing, though irregular, is continuous;

on the hindwing its two parts are very close together; the upper one is widely united near the costa, with the outer of the two oblique basal stripes. The latter are united in both wings, enclosing a narrow white band. The two lines of submarginal spots are less equal and regular than in *ethion*, the inner being very large and forming an almost continuous and very heavy lunular line. The anal and subanal black spots are edged with silvery blue. Tails shorter than in *manluena*. Expanse 32 millimetres.

Two males, Gonyi, Great Nicobar.

Family PIERIDÆ.

17. NYCHITONA XIPHIA, Fab., var. NICOBARICA.

My numerous specimens from Great and Little Nicobar all have the black margin of the apex much narrower than in the typical *xiphia*, and the discal spot greatly reduced, and almost obsolescent. The genus does not seem to occur in any of the northern islands of the group.

18. DELIAS KANDHA, n. sp.

♂, ♀. A local form of *thisbe*, Cramer. Allied to *pyramus*, Wallace, from Sikkim. In *kandha* the ochreous anal area of the hindwing above is replaced by pale cream; the light discal areas on the hindwing below, which in *pyramus* are ochreous anally and whitish apically, are in *kandha* of an almost uniform bright yellow hue, inclining to lemon; the ochre spot at the base of the costa of the hindwing below is much larger and more distinct; the apical grey streaks of the forewing above are obscurely tinged with ochreous. All the pale marks are larger, and the black areas smaller and better defined. The female hardly differs from the male. Four males and three females taken on the Potingi Pass in the Vizagapatam District, Madras Presidency and the adjoining Jaipur State, at from 3,000 to 5,000 feet elevation on the Eastern Ghâts. Expanse 98 millimetres.

19. DELIAS ETHIRE, n. sp.

♂, ♀. A local form of *hierte*, Hüb. The male closely resembles *Delias hierte*, var. *indica*, Wallace (Assam to Upper Tenasserim). It is a whiter insect, the apex being but slightly clouded with gray, the subapical band distinctly marked being gray, with the spaces beyond it partly of almost pure white. The cell of the forewing is white above and hardly touched with gray below, the upper two or three apical pale spaces tinged with yellowish. Hindwing immaculate except for the gray terminations of two or three of the veins. The scarlet spots of the hindwing below are transmitted through the wing as a pink band. *Below*, the disc, base and abdominal margin of the hindwing are bright lemon yellow, becoming whitish outwardly on the disc, the scarlet submarginal band is rather narrow and even. ♀. Like the male, and has little resemblance to the female of *hierte;* it is white, all the veins accented with black, the extreme apex and the subapical band of the forewing dark gray, leaving a whitish band tinged with ochreous across the apex. *Below*, the female is like the male, the apex of the forewing is more distinctly marked with lemon-yellow, and the veins and subapical band are darker, the cell marked with perceptible gray lines. The brilliant lemon and scarlet hues of the hindwing are transmitted through the wing appearing above as creamy and pink. The two lower disco-cellulars of the forewing are less oblique and more angled outwardly than in *hierte*, resembling those of *eucharis*. Expanse 98 millimetres.

Common in the Vizagapatam District, Madras Presidency (at Bobbili, Parvatipuram, the Potingi Ghát, etc.), and in the Jaipur State, probably extending to the Godávari; scarce in the Ganjam District (Mahendragiri); also seen in Southern Orissa, where it is probably rare. From *eucharis*, in company with which I have often taken it, it is easily distinguished by the absence of the dark submarginal band on the hindwing above and below.

Family PAPILIONIDÆ.

20. Papilio doubledaii, var. sambilanga.

Intermediate between *doubledaii*, Wallace (India and Malacca), and *rhodifer*, Butler (Andamans). The tail is black as in *doubledaii*. Of the discal semicircle of whitish spots on the hindwing, that on the abdominal margin is very short; those between the middle median and the radial are generally absent above and quite rudimentary below. The anal orange spot is large, the marginal one at the end of the middle median is joined with the submarginal one between the two upper medians, both above and below (very much as in *rhodifer*). The female is similar, but the wings are wider and the tails much shorter and broader.

Great Nicobar, rather common.

Family HESPERIADÆ.

21. Erionota (?) lalita, n. sp.

♂. Above light but very bright ferruginous, slightly paler outwardly, marked with translucent ochreous spots set in black rings. On the *forewing*, one large triangular spot near the end of the cell, another larger and quadrate below it between the lower median branches, a third, much smaller and rounded, slightly beyond them between the upper medians. Below these, two minute ones with the translucent pupil obsolescent, set obliquely in the internomedian space; also five subapical ones, small, well-separated, the third and fourth furthest from the base, the third largest, the fourth and fifth minute. *Hindwing* with a transverse black spot at the end of the cell, and a semicircle of eight smaller ones on the disc round it, of which only one or two are pupilled with hyaline: the first, which is placed basally between the costal and subcostal veins, is obscure. *Below* duller ferruginous, the markings similar, the black rings of the spots of the forewing less distinct. Body densely clad with rust-red fur, eyes scarlet. Expanse sixty millimetres. ♀ unknown, probably very similar.

I caught two males, of which I unluckily have but one before me, on Sirtai Mountain (2,000 feet), in the Lushai country, north-east of Chittagong and south of Cachar.

The type of *Erionota* is *thrax*, but Mabille includes *irava* in the genus. On account of its possible affinity with that species (which I have never seen), I put this rare butterfly under the head of *Erionota*. It seems, however, to bear more resemblance to Felder's species of *Chætocneme* and *Netrocoryne* from the Australian and Austro-Malayan region. The following details of the structure of *lalita* will perhaps be useful to that bold man who may some day be found to undertake to systematize the *Hesperiadæ*.

Costal margin of *forewing* slightly convex, apex acute, outer and hind margins straight or a trifle convex. Costal margin of *hindwing* replicate, very convex basally, apex distinct, outer margin rounded, abdominal margin convex with a deep abdominal fold. Cell two-thirds of the length of the *forewing*, costal vein ends just before the end of the cell, first subcostal originates at nearly one-third before the end of the cell, then at decreasing intervals come the second, third, fourth (which extends to the apex) and fifth, upper radial from end of cell, disco-cellulars oblique, hardly angled, the lower longest. *Hindwing*, costal vein extends to apex, cell broad, quadrate, half as long as the wing, longest from base to its lower angle, disco-cellulars somewhat sinuate, upper two-thirds as long as the lower, or as the distance between the bifurcation of the subcostals and the end of the cell. Lower disco-cellular meets the median just beyond its last bifurcation.

Antennæ of about fifty-five joints, the club consisting of twenty-nine joints, is bent at a right angle, and tapers to a slender point. *Palpi* densely hairy, penultimate joint very thick and rounded, concave on both sides, last joint projecting forward, minute, blunt, one-fifth as long as the preceding one, in which it is more or less concealed. The *feet* each bear two long hairs, two claws, and two pubescent cushions or *pulvilli*. The front tibiæ are slightly swollen, with a very short spur in the middle, the middle tibiæ have two very long and unequal spurs at the lower end. The hind tibiæ are clothed with very long dark brown appressed scales (not hairs). At their end a pair of spines, and also two singular follicular appendages resembling the husk of oats, acicular, scaly, hollow, dark-brown, membranous, loosely attached, and about two millimetres in length. On the middle of the tibia is a single somewhat longer spine with an accompanying follicle.

XIV.—*On two new species of* Ilex *from the Eastern Himalaya.*—*By* GEORGE KING, M. B., LL. D., F. L. S., *Superintendent of the Royal Botanic Garden, Calcutta.*

[Received May 8th ;—Read June 2nd, 1886.]

(With Plates XIII. & XIV.)

Both the species described below fall into the section of the genus *Ilex* which is characterised by having the flowers in very dense short axillary branched cymes, and with the fruit never more than 4-celled.

ILEX SIKKIMENSIS, King. A glabrous evergreen diœcious tree 30 to 50 feet high, the young branches rather stout, their terminal buds covered by numerous large imbricated broadly-ovate blunt puberulous bracts, their bark pale yellowish ; leaves thinly coriaceous, 5 to 7 inches long, narrowly elliptic-oblong or oblanceolate, the apex acute, the edges finely serrate, the midrib very prominent, primary lateral nerves 10 to 12 pairs, distinct but not prominent ; flowers in shortly pedunculate glomeruli from the axils of the older leaves, bracts broadly acute, each bract with a 3-flowered, 2 to 3-bracteolate, cyme in its axil ; flowers of both sexes pedicillate 4-merous, the sepals ovate blunt, the petals broadly ovate connected by their bases ; stamens in the male flowers about as long as the petals, the anthers broadly ovate, in the female flower absent ; ovary, absent in the male flowers, in the female 4-celled with 1 ovule from the inner upper corner of each cell ; ripe fruit globose, 2 in. in diam., yellow, succulent, crowned by the remains of the quadrate stigma ; pyrenes 4, trigonous, grooved, each 1-celled and 1-seeded.

Sikkim, at elevations of from 6,000 to 10,000 feet, collected by Kurz, Gamble, Lister, King.

This species falls into the section with *I. insignis*, *dipyrena*, and *odorata*. It is the plant referred to by Sir J. D. Hooker in the Flora of British India, Vol. I, p. 599, as a possible new species near *odorata*, of which, when working up the genus *Ilex* for that work, he had seen only a single imperfect specimen collected in Sikkim by Mr. Brandis.

Although resembling *I. insignis*, Hook. fil. & Th., in many respects, this species is readily distinguished from that species by its longer-stalked smaller fruit, and from *insignis*, as well as from every other Indian *Ilex*, by the great broad bracts which cover the terminal buds of its young branches. This has moreover yellow fruit, while the fruit of *insignis* and *dipyrena* is red, and that of *odorata* is nearly black. Like *odorata* the fruit of this has 4 pyrenes.

Plate XIII. 1, Apex of branch of *Ilex Sikkimensis*, King; 2, cluster of ripe fruits; 3, bract of inflorescence, *of natural size;* 4, apex of ripe fruit; 5, base of the same, *slightly enlarged;* 6, male flower; 7, the same with the stamens removed; 8, the same dissected to shew the calyx; 9, stamens; *enlarged*.

ILEX HOOKERI, King. A small deciduous glabrous tree, the young branches rather thin, their bark pale yellow; leaves coriaceous, from 3 to 5 inches long, narrowly oblong or lanceolate, the apex acuminate, the edges serrate and slightly recurved when dry, midrib prominent, lateral primary veins 6 to 10 pairs, prominent, as also are the nerves; flowers in dense small sub-sessile axillary glomeruli which are covered when young by ovate-orbicular bracts; flowers pedicillate, the pedicels winged, 0·2 inch long, and with 2 or 3 lanceolate bracteoles near their bases; flowers unisexual or hermaphrodite, 4-merous, the sepals short, triangular, united by their bases, as also are the broadly-ovate petals; stamens short incurved, anthers broadly ovate; ovary surrounded at its base by a thin inconspicuous disc, fleshy, 4-celled, the stigma large thick discoid; ripe fruit globular, 0·2 inch across, crowned by the discoid stigma: pyrenes 4, obtusely trigonous.

On Tongloo in the Sikkim Himalaya, at elevations of from 9,000 to 10,000 feet; also in the Chumbi valley: Gamble, King, and Calcutta Botanical Garden native collectors.

This species also falls into the section with *insignis*, *dipyrena*, and *odorata*. It had not been collected when Sir J. D. Hooker worked up the genus for the Flora of British India. It is distinguished from all these by its smaller narrower leaves, but especially by the small glomeruli from each of which only 2 or 3 fruits are produced.

Plate XIV. 1, Branch of *Ilex Hookeri*, King; 2, ripe fruits; *of natural size;* 3, hermaphrodite flower seen from below; 4, 4, the same seen from above; 5, single petal and stamen; 6, stamens; *enlarged*.

XV.—*Insect-Pests belonging to the Homopterous Family* Coccidæ.

By E. T. ATKINSON, B. A., PRESIDENT.

[Received and read July 7th, 1886.]

In a recent paper on the Homopterous section of the Indian Rhynchote, it was remarked (p. 205 *supra*) that the group to which the *Coccidæ* belong had been practically unworked in India, and that whoever takes them up will probably have little aid from what has been written about them. Further research shows no reasons for modifying this statement; and the object of the present paper is to introduce the family to the notice of observers in India.

The more immediate cause of the early appearance of the paper is the receipt of letters from Ceylon asking for aid in the discrimination of Ceylonese species, and, as the inquiry is still in its infancy, it appears to me that the better plan will be to publish extracts from these letters in our Proceedings and invite the aid of those who are inclined to assist in this investigation. This aid may be afforded by collecting specimens *in spirits*, accurately watching and recording transformations and the seasons at which these occur; the soil, aspect, climate which appear to favour or retard the spread of the insects; accounts of any experiments for destroying the pests; general and particular effects of each species on tea, coffee, chinchona, or other economical products, local history of first appearance, continuance, &c., enemies of the pests, whether Hymenoptera, Coleoptera, or Acari.

COCCIDÆ.

Coccus, Linn.: *Coccidæ*, Leach, Westw.: *Gallinsecta*, Latr.: *Coccides*, Sign.

The insects of this family are commonly known as scale-insects or gall-insects and some of them, from the white farinose substance secreted by them, as mealy-bugs. They are common on almost all trees and plants in all parts of the world, and frequently commit great havoc on those cultivated for food or industrial purposes such as the coffee, tea, chinchona, orange, lemon, apple, and other fruit-trees: with the exception of the *Carteria lacca*, Ker, and a few others, their history has never been studied in India, and it is with the object of showing the character and forms of these insects sufficiently to aid in their determination that the following outline history of the family is given. It is chiefly based on the writings of Bouché, Costa, Westwood, Targioni-Tozzetti, Signoret, Maskell, Comstock, and Löw.

The Linnæan genus *Coccus* was divided by Geoffroy into two sections,

(1) *Chermes*, Geoff. nec. Linn. including those having the form of a shield and (2) *Coccus* for the remainder. Bouché further separated the genus *Chermes* of Geoffroy into two divisions, (*a*) :—those in which the body itself of the insect has or assumes the shield-like form, and (*b*) :—those in which the insect is concealed beneath a distinct moveable shield. It is, however, to the works of Targioni and Signoret that we have to look for the systematic classification of the insects of this family and for those characteristics common to nearly all the species on which the family is founded. The larval form has six legs, two antennæ, and two eyes, and there is no visible distinction between the sexes: the adult ♀ has usually neither wings, legs, nor antennæ, but is furnished with a setiform rostrum or sucking apparatus: the adult ♂, on the other hand, has two wings, two processes similar to the halteres of the Diptera in place of hind-wings, legs, antennæ, two and sometimes four eyes, but no rostrum: the adult ♂ also is less common than the adult ♀, indeed in some genera has not yet been discovered.

Signoret distributes the genera of this family amongst four subdivisions or sub-families:—

Diaspina :—Comprising those insects which are covered by a scale or pellicle composed partly of the exuviæ or moulted skins of each transformation and partly of a secretion formed by the insect itself and which is attached to the cast-off skin, the two forming a shield more or less independent of the body of the insect and which is variously called scale, shield, buckler, test, or puparium (*bouclier, schild*).

Brachyscelina :—Comprising species living in tubes or galls and of which the ♀ resembles the ♀ of the preceding sub-family and the ♂, with its hook-shaped genital sheath, furnished with lateral filaments, the ♂ of the *Coccina*.

Lecanina :—Comprising species either naked or inclosed or simply covered with a waxy or filamentary or even calcareous material: most of the ♀ take on an entirely different form after impregnation and then fixed to their food-plant remain so fixed for the rest of their lives. The lower-lip is one-jointed: the anal extremity is cleft and has two triangular lobes or plates above the cleft.

Coccina :—Comprising species in which the adult ♀ is naked or is covered more or less with a whitish waxy matter, varying much in form and consistence: the lower-lip is 2—3 jointed; the anal extremity is not cleft, but is produced in two tubercles more or less developed and prominent, each of which is furnished with a long bristle: the triangular lobes or plates of the *Lecanina* are wanting: at the last stage the ♀ is usually inclosed in a cottony or felted or calcareous envelope that forms a receptacle for the eggs.

Subfamily DIASPINA.

Diaspides, Sign., A. S. E. F. (4 sér.) ix, p. 98, 109 (1869) : *Diaspidæ*, Maskell, Trans. New Zeal. Inst. xi, 189 (1879) : *Diaspinæ*, Comstock, Rep. Dep. Agr. U. S. p. 278 (1880) : *Diaspidæ*, F. Löw, Verh. zool-bot. Ges. Wien, xxxii, p. 513 (1883).

The genera falling under this subfamily, as we have seen, are distinguished by a shield or covering formed partly of the cast-off skins of the earlier stages and partly of a filamentary addition thereto secreted by the insect itself. Dr. F. Löw (l. c.) has recently bestowed some attention on the metamorphoses of this group, and I shall incorporate the result of his investigations in the following account of this subfamily :—

♂. In the adult, the head has four ocelli, two on the underside close to each other and two on the vertex behind the base of each of the antennæ, which are 10-jointed and placed close to each other at the apex of the head, each on a small tubercle : mesonotum in the middle with a transverse band (*apodema*) which is narrow and of equal breadth throughout, somewhat arched, very shining and convex and in most species of a darker colour than the rest of the dorsum. The abdomen is almost as broad as the thorax, broadly rounded at the extremity and furnished there with a knob or protuberance, from which proceeds the genital organ, which is as long as or longer than the abdomen : there are no caudal appendages. Wings oval, the basal lobe but slightly projecting ; the hind-wings are wanting and are replaced by a pair of usually clavate processes, resembling the halteres or poisers of the *Diptera*, and furnished with a hooked bristle which fitting into a pocket or hollow in the fore-wings steadies them in flight. Legs moderately long ; femora tolerably stout, somewhat flattened and with a notch on the underside near the base ; tarsi with one joint, conical and ending in a simple claw and four knobbed hairs called digitules. The ♂ rests as larva and pupa under a variously shaped shield which is composed of a single larval skin and of an appendage formed of a stiff (neither filamentous nor felted) secretion, the latter attached to the margin of the former.

♀. In the adult, the body is circular, pyriform, oval, or longish-elliptical, strongly depressed, without any of the external organs except the rostrum or sucking setiform apparatus. Last abdominal segment (*pygidium*) very flat, sharp-edged, roundish, semi-circular or obtusely triangular, undivided, furnished on the posterior margin with small lobes, spines, hairs, and scales. There are visible under the microscope by transmitted light on the upper side of this segment a number of organs in the form of circular openings (*pores*) or tubes, which are either collected in groups or stand in irregular rows along the margins, and which are probably organs of secretion, hence the name spinnerets (*filières*). These organs afford specific and generic characters of value. The female individuals lie either in all stages free beneath a variously formed shield, which is made up of two larva-skins each with an appendage of stiff secretion at its margin, or they are enclosed as mature females in the second of the skins included in the shield, and then only the first skin possesses a secretional appendage. We shall now further examine the shield.

This shield varies much in shape and colour according to genus and species. As observed before, it is composed of the cast-off skin and a secretion formed by the insect itself. In the ♀ there are two of these cast-off skins present in the shield and in the ♂ but one. In both sexes the larvæ possess six legs, antennæ, and a rostrum, and are not distinguishable from each other. They attach themselves to the food-plant on which they live by the rostrum or sucking apparatus, and the abdomen soon begins to grow, the extremities, however, remaining of their original size. In this stage there is no shield, but, after the lapse of a few days, the first moult takes place, and the cast-off skin preserves the characters of the change that then takes place. From an examination of this skin it appears that, contrary to the process obtaining in the *Cicadæ* and other families of the Homoptera, in the first shedding of the skin the dorsal portion is entire, and it is the lower side of the front portion of the abdomen that bursts and allows exit to the insect. The skin of the dorsum is compact or felted and semi-corneous, whilst that of the sternum and foreparts of the abdomen is comparatively soft and delicate; and these characters are preserved in the exuviæ, which show the dorsal portion entire and the sternal portion burst open and often unevenly torn in the process. The larva then commences to deposit a secretion on the edge of this skin so as to gradually form an appendage varying in shape and colour according to the genera and species, and which together with the exuviæ form the shield under which the larva lives. Up to this point in their history there is no difference in the development of the sexes, but here they diverge.

♂. According to Dr. Löw, when the shield has been formed as above described, a second moult takes place and this time the dorsal surface bursts and the very delicate cast skin is not incorporated with the shield but is extruded posteriorly: the shield remaining the same. The appendage to the first larval skin formed by the added secretion varies in the different genera; in *Aspidiotus* and *Aonidia* this secretion surrounds the larval skin as a more or less broad, circular, oval or elongate-oval border, which is more or less convex according to the shape of the larva within it. It is attached too to the larval skin in such a way as to place the skin somewhat away from the middle towards the side of the shield. In the other genera, the larval skin lies at the base of the shield, whilst the attached secretion forms a straight caudal appendage, which is not so broad as, or but a little broader than, the larval skin itself. In *Diaspis* and *Chionaspis*, this appendage is parallel-sided, flat, with the sides and the middle longitudinally ridged, whilst in others it is convex, fluted, highest next the hinder end of the larval skin, and posteriorly generally somewhat flattened, with the sides parallel or a little dilated. The next change produces the adult ♂ already described.

♀. When the larva, after casting the first skin as already explained and after adding to it a secretion to form a shield, has attained to a certain age, it undergoes a second moult beneath the shield and becomes a fully developed female. The process undergone indicates two separate groups, which may be thus distinguished:—

(*a*). *Aspidiotaria*:—in the genera *Aspidiotus*, *Diaspis*, *Targionia*, *Parlatoria*, *Chionaspis*, and *Mytilaspis*, the ♀ completes the second moult exactly like the first, bursting through the skin on the underside, and the second skin, like the first, is shield-shaped, compact, felted, and entire, and becomes attached to the inner side of the first skin so as to form a part of the shield, under which the insect moves freely about. The perfect ♀ then completes the shield by adding to it an appendage formed of the same secretion as that produced by the ♂.

(*b*.) *Leucaspiaria*:—in the second group, formed of the genera *Leucaspis*, *Aonidia*, and *Fiorinia*, the second moult does not take place by the bursting of the skin, but the body shrivels up towards the head and thus becomes detached from the skin. The insect remains enclosed in the skin as in a cocoon, and the skin retains the shape and size of the larva from which it has been shed and is as large, or nearly so, as the shield which was already formed when this second moult took place, and adheres rather firmly to it. Above, it is compact and felted, below soft and thin, and completely envelopes the female, which ceases to grow and is, in fact, smaller than in the preceding larval stage. Therefore, in species belonging to this sub-family, the ♀ can be at once recognised by the presence of two cast-off skins in the shield, the first of the first moult with an appendage formed by the secretion referred to, and which varies in form with the genus, and, below it and to a certain extent behind it, the larger cast-off skin of the second moult, covered partly by the first skin and partly by its appendage. In those cases in which the adult ♀ is free, this second larval skin has a further secretion of its own, but in the second group, where the ♀

is inclosed, there is no such secretion. In no case is the shield composed of cast-off skins alone, and, where it appears so, closer examination will show the secretion.

In the ♀ as in the ♂, the shape and colour of the shield varies with the genera and species. In *Aspidiotus*, *Diaspis*, *Aonidia*, and *Targionia*, the shield is circular or oval with the first larval skin in or near the middle; in *Parlatoria* and *Leucaspis* it is produced, oval, with the first larval skin at or near the apex; in *Fiorinia* it is elongate and with parallel sides, and in *Chionaspis* and *Mytilaspis* it is mussel-shaped. Dr. Löw further observes* that the shields in the ♂ are smaller, narrower, and often quite differently formed from those of the ♀, so that, if we find one with a single larval skin attached, this character will help us to ascertain whether the insect beneath is a ♂ or ♀,—if the specimen be a ♀, it must be in the last larval stage, if it be a ♂, it must be either a larva or a pupa. In examining the ♀ of the second group above noticed, in which the ♀ is completely enveloped, care must be taken not to mistake the second larval skin for a dead larva. If it appears as a small thin pellicle not attached to the shield, it is a dead larva, but if be a stiff, semicorneous body attached by its dorsum to the first skin, it is the second larval skin and beneath is the living female. The following table gives Löw's arrangement of the genera of this group.

Table of Genera.

A. *Aspidiotaria*:—The perfect ♀ not enclosed in the second (lower) larval skin, which forms a portion of the shield, and which itself is smaller than the perfect shield and has a secretional appendage on its border.

a. Shield in ♀ circular or broadly oval, with the first larval skin placed in or near the middle.

- *a*. Shield in ♀ flat, plate-shaped, not closed beneath.
    1. Shield of ♂ oval or ovally produced, the larval skin placed somewhat away from the middle:—*Aspidiotus*, Bouché [Sign., A. S. E. F. (4 sér.) ix, p. 113, 1869].
    2. Shield of ♂ long with almost parallel sides, scarcely broader than the larval skin which is placed at its apex with median and lateral longitudinal ridges:—*Diaspis*, Costa [Sign., l. c. 431].
- *b*. Shield of ♀ highly convex, hemispherical, closed beneath by a

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* Where there is difficulty in detecting the construction of the shield, the same writer recommends its being dissected in a solution of caustic potash or boiling water.

secretional layer or plate; shield in ♂, produced ovally, larval skin almost at the apex :—*Targionia*, Sign. [l. c. x, 105].

b. Shield in ♀ produced ovally or mussel-shaped, *i. e.* narrowed in front and gradually widened behind: first larval skin at the apex or very near it.

a. Shield of ♀ long, oval or elliptic: larval skin placed at the apex or near it: body of ♀ broadly oval: shield of ♂ long, narrow, with almost parallel sides :—*Parlatoria*, Sign. [l. c. ix, 450].

b. Shield of ♀ narrow at the apex, gradually widened towards the posterior part, mussel-shaped: larval skin placed at the apex: body of ♀ ovally produced or in form of an ellipse.

1. Shield of ♀ brown, more or less transparent: shield of ♂ brown, narrow, elongate, convex like that of the ♀. *Mytilaspis*, Targ. [Sign., l. c. x, 91: includes *Lepidosaphes*, Shimer].
2. Shield of ♀ white, opaque: shield of ♂ white, long, narrow, with nearly parallel sides, scarcely broader than the larval skin, flat, with median and lateral longitudinal ridges :—*Chionaspis*, Sign. [l. c. ix, 442].

B. *Leucaspiaria* :—Adult female enclosed in the second (lower) larval skin, which forms a portion of the shield, which is itself as large or nearly as large as the perfect shield and has no secretional appendage.

a. Shield of ♀ ovally produced or with parallel sides: the first larval skin ovally produced and placed at the apex of the shield.

1. Shield of ♀ ovally produced, white: the first larval skin yellowish or brownish, the second pitch- or red-brown: shield of ♂ very long, narrow, pure white, very convex behind the yellowish larval skin, somewhat flattened posteriorly :—*Leucaspis*, Sign. [Sign., l. c. x, 100].
2. Shield of ♀ narrow at the apex, then abruptly widened and produced, with almost parallel sides, delicate, brownish-yellow: shield of ♂ of the same shape but much smaller and narrower :—*Fiorinia*, Sign. [Sign., l. c. ix, 449].

b. Shield of ♀ circular or broadly-oval, rather flat: the first larval skin oval or almost circular, placed in the middle or slightly away from the middle of the shield: shield in ♂ oval, with the larval skin away from the middle :—*Aonidia*, Sign. [Sign., l. c. x, 102].

Maskell [Trans. New Zeal. Ins. xii, p. 293, 1880] has created a genus *Poliaspis*, which he describes as possessing the same character as *Leucaspis*, but it has also a fringe of spiny hairs set close together around the edge of the abdomen, which fringe is absent in *Leucaspis*.

Although no species of this sub-family has been recorded from India, we may reasonably expect to find the following or their representatives.

Aspidiotus aloes, Boisd., on *Aloe umbellata* [Sign., A. S. (5 sér.) ix, p. 114, 1869.]
,, *buddleiæ*, Sign., on *Buddleia salicina* [Sign., l. c. 115.]
,, *caldesii*, Targ., on *Daphne collina* [Sign., l. c. 116].
,, *ceratoniæ*, Sign., on *Ceratonia siliqua* [l. c. 118].
,, *chamæropsis*, Sign., on species of *Chamærops* [l. c. 118].
,, *destructor*, Targ., on palms, guavas [l. c. 121].
,, *nerii*, Bouché, on *Nerium oleander* [l. c. 126].
,, *pandani*, Boisd., on species of *Pandanus* [l. c. 131].
,, *palmarum*, Bouché, on species of *Chamærops* [l. c. 131].
,, *bicarinatus*, Walker, from China [l. c. x, 107].
Diaspis boisduvalii, Sign., on orchids [l. c. ix, 432].
,, *bromeliæ*, Kerner, on pine-apple [l. c. 434].
Fiorinia pellucida, Sign., on Areca palm [l. c. 449].

Sub-family BRACHYSCELINA.

Brachyscélides, Sign., A. S. E. F. (4 sér.) ix, p. 100 (1869) ; (5 sér.) vi. p. 591 (1876).

This sub-family was created by Signoret to contain several genera from New South Wales described by Schrader [Trans. Ent. Soc. Sydney, i (i), p. 1, 1863] and which live in galls or tubes on the *Eucalyptus* and other allied trees. The greater number of the galls of *Brachyscelis* were found on *E. hæmostoma*, though *E. corymbosa* and *Angophora lanceolata* were also infested by them. In *Brachyscelis*, the galls of the ♂ are trumpet-shaped and, in the figure given by Schrader, are attached to the underside of the leaf, whilst those of the ♀ are of an elongated bell-shape, with a cap which falls off when the gall arrives at maturity, and are usually placed on the small branches. At the end of this gall is found an opening or notch such as might be made by a knife and through it the ♀ receives air and also the larvæ escape. The two abdominal setæ of the ♀ appear through this orifice, which is always surrounded with a white farinose secretion. The larva is flat, nearly transparent, and of a yellow colour : the sides are furnished with hairs arranged in one row and there are two long anal setæ : the antennæ are about half the length of the body, 7-jointed and each armed at the tip with two small and two long hairs : tarsi 3-jointed, the last joint with a claw, which is also furnished with some small hairs. The adult ♂ is about two lines long, of a yellow colour and has one-jointed tarsi ending in two claws, one being stronger than the other : the anal setæ are nearly twice as long as the body ; the wings contain two longitudiual veins : antennæ with ten-joints, which are neither very distinct nor regular: eyes prominent. These insects have hitherto been found only in Australia, but it is possible they may be found on the *Eucalyptus* imported thence and now common in India. The genera created by Schrader are:—

1. *Brachyscelis*, in which ♀ has six legs complete, but short and unfit for use.
2. *Opisthoscelis*, in which ♀ has only two long posterior legs.
3. *Ascelis*, in which ♀ is apodous.

In *Opisthoscelis*, the galls of both sexes are often found under the same leaf: that of the ♀ is in the shape of a pea, but somewhat larger; that of the ♂ is very small and conical. The ♀ of *O. subrotunda* is of a crimson red colour, nearly round, but the terminal segment of the abdomen is very much tapered; the ♂ is of a red colour, with anal setæ; the body, legs, and antennæ are very hirsute: long about 2‴.

In *Ascelis*, the ♀ larvæ alone form galls; the ♂ undergoing its changes within the gall of the parent ♀. This ♀ is of a pale yellow colour, the segments are hardly visible, and it appears as a mass of apparently inert matter without external members. The dorsum has a three-pointed corneous process, which always holds some gum apparently intended to close the opening of the gall, which is here always on the upper side of the leaf to which the gall is attached. The galls are usually of a large, globose form, and also in the form of large flat swellings on both sides of the leaves. The larva is flat and transparent, and resembles that of *Brachyscelis*, except that it is more pointed at the apex, has shorter antennæ, short anal setæ, and has not so much hair fringing the abdomen. The ♂ larva changes in the parent gall to a second form, which is red, active, and somewhat longer than the first change, but narrow and with very short anal setæ; after this it changes to a pupa and then to an imago, which is also of a crimson colour.

Subfamily LECANINA.

Lécanides, Sign., A. S. E. F. (4 sér.) ix, p. 100 (1869); (5 sér.) x, p. 268 (1870). *Lecanidæ*, Maskell, Trans. New Zeal. Inst. xi, p. 203 (1879): *Lecaninæ*, Comstock, Rep. Dep. Agr. U. S. p. 278, 330 (1880).

This group comprises those genera in which the insect is either naked or inclosed, clothed with a waxy or cottony substance, or even completely enveloped, and in such case the ♀ rests naked on its food-plant and forms a cottony secretion between the abdominal skin and the bark in which the eggs are placed. The form varies much; sometimes flat or globular, oval or circular, soft or semi-corneous. The rostral filaments have their source between the first pair of feet and first are directed towards the anal extremity and then turn backwards through a groove at their source. In the *Diaspina*, the rostral filaments are entirely free from their source ; here in addition they are furnished with a one-jointed lower lip. In the *Coccina*, this lower-lip is 2—3-jointed. The antennæ are small, in the young insect and 6—7-jointed ; in the adult 7—8-jointed ; the two first joints are stout, short, the third generally longest, the last the most pubescent. Feet short, tarsi one-jointed, with a single claw accompanied by four hairs (*digitales*), of which the two upper are long and end in a small knob and the two lower are short and clavate. The body is usually ciliated and in some genera fringed. The ♂ in the larval and pupal stages is like the ♀ ; before entering the adult stage, a whitish or sometimes felted waxy pellicle is formed above which is detached from the body and beneath which appear the abdominal filaments. The adult ♂ has usually a small head, angular in front and on the sides, with several eyes and ocelli : in *L. aceris* there are ten in all, in others four, six, or eight : the antennæ are large and pubescent, usually ten-jointed, of which 4—6 joints are the longest, the last joint has sometimes hairs differing in size and shape : thorax more or less large, more or less gibbous with a band (*apodema*) more or less prominent, and often darker than the rest of the thorax : wings membranous, hyaline, pubescent, with a single vein, which bifurcates near the base and sends one branch to the costal, the other to the internal margin : in place of hind-wings are processes similar to the halteres or poisers of the *Diptera* which end in 1—3 bristles, curved at the tip : the abdomen ends in a tubercle furnished with a process directed downwards and protecting the genital organ : on each side are two long cottony threads secreted by the spinnerets, accompanied by several rather long hairs around which this cottony matter adheres.

The following subdivisions of this sub-family are suggested by Signoret or by his descriptions :—

1. *Lecaniodiasparia :*—Species having the shield-like form of the *Diaspina* and the anal lobes and lower lip of the *Lecanina :* inclosed in a complete sac or envelope : adult ♀ without legs or antennæ or the latter only represented by stumps : the ♀ after laying her eggs within the envelope shrivels up towards the head : young sometimes viviparous.

2. *Signoretiaria :*—Similar to the preceding, but legs and antennæ present in the adult ♀.

3. *Ceroplastaria :*—Species in which the adult ♀ is covered with a waxy layer having the tesselated appearance of the carapace of a tortoise.

4. *Pulvinariaria* :—Species in which the body is naked, but secretes a cottony mass in which the eggs are laid.

5. *Lecaniaria* :—Species in which the body is naked and there is a secretion : often viviparous.

Subdivision LECANIO-DIASPARIA.

Lécaniodiaspites, Sign., A. S. E. F. (4 sér.) x, p. 273 (1870) ; *Lecanodiaspis*, (5 sér.) i. p. 422 (1871).

Lecanio-diaspidæ, Maskell, Trans. New Zeal. Inst. xi, p. 205 (1879). *Lecanio-coccidæ*, pt., ibid, xiv, p. 223 (1882).

This group includes those genera in which the adult ♀ is without legs or antennæ and is inclosed in a sac or envelope with a fringe around the body more or less visible but always present : the upper portion of this envelope appears to be formed by the larva and the lower portion by the adult insect : the ♀ lays her eggs within this envelope and to make room for them shrivels up towards the head so as to be hardly visible : the young are sometimes viviparous. The group forms a link between the *Diaspina* and the *Lecanina*, having the shield-like form of the first and the under-lip and abdominal lobes which characterise the second.

1. The apodous adult ♀ inclosed in a firm, globular, irregular, shell, to which it is not attached : the young insect instead of the abdominal lobes of *Lecanium* has the anal tubercles of a *Coccus :* the under-lip of the larval ♀ is 2-jointed :—*Pollinia*, Targ. [Sign., l. c. x, 274.]

2. Shell or envelope more or less flat or convex, firm, and with a regular double fringe around the naked body and on the dorsum a number of tubiform spinnerets secreting a matter isolated like the tubes but together forming a complete envelope : under-lip 1-jointed : *Asterolecanium*, Targ. [Sign., l. c. 276].

3. Shell almost smooth, compact, spherical above, flat beneath, felted, with a well-developed fringe : adult ♀ without feet, antennæ completely atrophied, their place occupied only by circular rings : anal tubercle always present and for this reason Maskell makes it the type of a new subsection *Lecanio-coccidæ* :—*Planchonia*, Sign. [l. c. 282].

4. Similar to *Planchonia* without feet, but with the antennæ present thus connecting with the next group :—*Lecaniodiaspis*, Targ. [Sign., l. c. 285].

5. Maskell [Trans. New Zeal. Inst. xi, p. 208, 1879] subsequently created a genus for an insect in which the young have the abdominal lobes ; the shield is glassy and transparent, becoming waxy at a later period and, in one species, felted at the latest stage : the ♀ preserves the feet and antennæ at least until after the young are produced :—*Ctenochiton*.

6. To these add a genus created by Maskell for species in which the adult ♀ has a shield formed partly of the pellicle of the second moult and partly of a firm, apparently chitinous secretion: apodous in the adult stage:—*Lecanochiton*, Mask. [Trans. New Zeal. Inst. xiv, p. 221, 1882].

Subdivision SIGNORETIARIA.

Signoret, A. S. E. F. (5 sér.) i, p. 422 (1871).

This group includes species inclosed in a kind of sac or envelope formed by the female at the time of laying her eggs and intended for their protection: this sac varies much in character being in some a mere cottony mass, and in others firm and felted: feet and antennæ present, sometimes atrophied.

1. Species inclosed in a rather thick or felted case formed of a white substance: antennæ 8-jointed in the adult, 6-jointed in the larval ♀:—*Signoretia*, Targ. [Sign., l. c. 426].

2. Species enclosed in a complete envelope or sac in which the adult ♀ is found lying on a cottony mass, its body shrivelled and pushed to one of the extremities in proportion to the number of the eggs: the larval and adult ♀ have 6-jointed antennæ, but the feet and antennæ become atrophied, thick and short, and the joints are scarcely visible: adult ♂ with 10-jointed antennæ: six eyes, two in front of the vertex, two a little beneath and two in place of the rostrum:—*Eriopeltis*, Sign. [l. c. 429].

3. Species inclosed in a sac of a white felted substance: anal ring round in front and behind and with eight hairs on the recurved extremity: antennæ of ♀ with six joints in the larval, pupal, and adult states. *Philippia*, Targ. [l. c. 433].

Subdivision CEROPLASTARIA.

Sign. A. S. E. F. (5 sér.) i, p. 423 (1871).

This division includes those species which are covered by a layer more or less thick of a waxy substance that forms in some a covering resembling the carapace of a tortoise and in others one resembling a star-fish. It includes the genera *Vinsonia* and *Ceroplastes*, the former of which combines the tortoise-shaped disc of the dorsum with star-fish limbs, whilst the latter is without arms. From Signoret's remarks [l. c. iv, p. 98, 1874] we should place here the genus *Fairmairia*, Sign., to contain species having a scaly covering of a mother-of-pearl consistence in the form of a tent or of two leaves leaning against each other; composed of a circular-rayed secretion that increases in concentric circles formed each below the other. The larva is flat, twice as long as broad; as it grows it becomes higher than broad, but still keeping its elongated form; 2½ times as long as broad, very convex above and flat beneath: it preserves its limbs and antennæ, which are 6-jointed in the larva and 8-jointed in the adult.

Genus VINSONIA, Signoret.

A. S. E. F. (5 sér.) i, p. 423 (1871); ii, p. 33 (1872).

Insects in which the pellicle covering the body is of a waxy appearance, corneous, transparent, forming on its disc a tortoise-like tessellation and having seven rays or arms, one corresponding to the head and three on each side corresponding to the stigmata, with a very short one at the anal extremity. The insect beneath is oval, strongly rounded, a little narrowed towards the head: antennæ 6-jointed, of which the third joint is longest and equal to the last three taken together; the sixth is longer than the fourth and fifth and has some hairs; there are two hairs on 1, 2, and 5: rostrum 1-jointed, short: feet slender and short, tibiæ as long as the tarsi.

VINSONIA PULCHELLA, Signoret.

A. S. E. F. (4 sér.) x, t. 7, f. 7 *a*—*d* (1870); 5 (sér.) ii, p. 34 (1872).

The ♀ has the appearance of a 7-branched star, and, as it grows older, the secretion fills up the space between the branches of the star, which appear then to be united by a membrane: the disc of the dorsum is convex and semi-globose. This species has been found on the mango in Réunion.

CEROPLASTES, Gray.

Spicil. Zool. p. 7 (1830): Walker, Cat. Hom. B. M. iv, p. 1086 (1851): Sign., A. S. E. F. (5 sér.) i, p. 424 (1871); ii, p. 35 (1872); Comstock, Rep. Agr. U. S. p. 330 (1880).

Species covered with a thick waxy matter which does not adhere to the insect, and which is formed of layers of secretions from the spinnerets. Some of the species have on the dorsum tubercles or tumescences varying in size according to age and which disappear more or less as the insect reaches its full growth, then from being more or less flat with concentric lines and tumescences it becomes globular and smooth: antennæ 6-jointed, of which the third joint is the longest: in the larval stage the fourth and fifth joints appear as one: legs long, tibiæ as long as the tarsi: claw with four digitules, the shorter pair very stout and horn-shaped: ♂ unknown.

CEROPLASTES CERIFERUS, Anderson.

Coccus ceriferus, J. Anderson, Mon. Coccus cerif., Madras, (1791); Corres. Madras, p. 46 (1800): Pearson, Phil. Trans. p. 383 (1794); Fabricius, Ent. Syst. Sup. p. 546 (1798); Syst. Rhyng. p. 311 (1803): Chavannes, A. S. E. F. (2 sér.) vi, p. 144 (1848): Walker List Hom. B. M. iv, p. 1087 (1851).

Columnea ceriferus, Targioni, Atti Georg. (1866).

Ceroplastes ceriferus, Westwood, Gard. Chron. p. 484 (1853): Sign. A. S. E. F. (5 sér.) ii, p. 40, t. 7, f. 3 (1872). J. Wood-Mason, Journ. Agri.-Hort. Soc. India, 1878, v, p. 76.

Insect globular, a little elongate, covered with a white waxy mass; the part resting on the food-plant more or less convex. Found on *Celastrum ceriferum* in Madras: on the kowa or arjoon, mango, pipul, and other trees in Ranchi, Chutiá Nagpur.

Subdivision PULVINARIARIA.

Pulvinariæ, Maskell, Trans. New Zeal. Inst. xi, p. 205 (1879): Sign., A. S. E. F. (5 sér.) i, p. 424 (1871); iii, p. 29 (1873).

This division is formed for the genus *Pulvinaria*, Targ., which includes those species in which the adult ♀ forms a mass of waxy-resinous cottony matter in which the eggs are laid. To this genus belongs the *P. gasteralphe*, Icery, that attacks the sugar-cane in the Mauritius.

Subdivision LECANIARIA.

Sign., A. S. E. F. (5 sér.) i, p. 424 (1871); iii, p. 395 (1873).

This group includes those species which are naked: they vary in form, flat, or globular, or semi-globose and more or less smooth or rugose. It comprises the following genera:—

1. Species which are naked, flat or globular, smooth or rough, with one joint in the lower lip and having anal lobes or scales:—*Lecanium*, Illig. [Sign., l. c. iii, 395].

2. In which the adult ♀ in its most advanced stage is divided into two equal parts by a film formed of the skin of the abdomen which remains stationary, whilst the insect continues to increase on its dorsal surface until the lateral margins thereof meet and a ball-like form is produced on the underside of which traces of a fissure may be seen:—*Physokermes*, Targ. [Sign., l. c. iv, 87].

3. Species in which the ♀ is spherical, more or less rounded, except where it is attached to its food-plant, and the ♂ occur in masses along and around the branches on which the insect lives: formed for the wax-insect of China:—*Ericerus*, Guérin [Sign., l. c. 90].

4. Body convex above and expanded on the margin; cleft posteriorly, lobes obtuse, approximate, inflexed: antennæ short, conical, 6-jointed, three basal joints large, terminal sub-equal, small: feet robust short, tibia hollowed anteriorly to receive the tarsus, which is ovate, acute, furnished with a pointed claw:—*Lecanopsis*, Targ. [Sign., l. c. 93].

5. Differs from the preceding in having neither feet nor antennæ in the adult state:—*Aclerda*, Sign. [l. c. 96].

6. Created for the lac-insect of India:—*Carteria*, Sign. [l. c. 101]: *see* A. M. N. H. i. p. 10 (1861) for Carter's description.

LECANIUM, Illiger.

Sign., A. S. E. F. (5 sér.) iii, p. 395 (1873).

Signoret includes in this genus species which are naked, more or less flat or globular, smooth or rugose: lower-lip with a single joint: abdomen cleft at the anal extremity and with two triangular lobes or scales above the cleft.

Signoret has divided the genus, which is numerous in species, into six sections or sub-genera:—

1. Insect flat; segments of the body distinguishable; usually viviparous: antennæ in adult ♀, 7-jointed; in larva, 6-jointed:—*L. hesperidum*, Linn.

2. Insect more or less elevated, but elongate, and some having a kind of dorsal ridge: usually oviparous: ♀ ordinarily with 7-jointed and sometimes 8-jointed antennæ, larva with six:—*L. persicæ*, Fabr.

3. More or less elevated, globose, hemispherical; skin of a peculiar tessellated structure: antennæ in ♀, 6—7-jointed. *L. aceris*, Schrank.

4. More or less globose, hemispherical; the skin is perforated with oval cellules or openings; tarsi jointed; antennæ in ♀, 8-jointed. *L. coffeæ*, Walker.

5. In which the skin is rugose and the dorsal disc has one longitudinal and two transverse ridges and is marked by a more or less irregular pattern formed of cellules or openings: antennæ usually 8-jointed.—*L. depressum*, Targ.-Tozz.

6. Entirely globular except the part attached to the food-plant: antennæ and feet wanting:—*L. emerici*, Planchon.

LECANIUM HESPERIDUM, Linn.

Coccus hesperidum, Linn. Syst. Nat. ii, 739 (1735): Fabricius, S. R. (1803).

Calymnatus hesperidum, Costa, Nuov. Obser., t. i, f. 1? (1835).

Calypticus hesperidum, Costa, Faun. Ins. Nap. 8, 1 (1837): Lubbock, Proc. Royal Soc. ix, p. 480 (1858); A. M. N. H. (3 sér.) iii, p. 306 (1859): Beck, Trans. Micr. Soc. (n. s.) p. 47 (1861).

Lecanium hesperidum, Sign., A. S. E. F. (4 sér.) viii, p. 856 (1868) ; (5 sér.) iii, p. 399 (1873) : Maskell, Trans. New Zeal. Inst. xi, p. 205, t. 6, f. 12 (1879) ; xii, p. 292 (1880) : Comstock, Rep. Dep. Agr. U. S. p. 44, f. 52 (1876) ; p. 335, t. 8, f. 2 (1880).

Young insect flat, long, oval, reddish-brown, very active ; abdominal cleft visible : antennæ with six joints, the third longest, the fifth having the appearance of two soldered together, the last with a few hairs : tibiæ and tarsi of about equal length ; the upper pair of digitules long, the lower short and narrow : the abdominal lobes end in two very long setæ. The adult ♂ is not known.

Adult ♀ oval, varying in eccentricity from a regular ellipse to nearly circular, elongate, flat ; yellow, inclined to brown on the disc, often dark ; smooth, shining, with a fringe of small hairs not very close together, sparingly punctured on the disc ; after death, the border above becomes wrinkled radially for a narrow space. The antennæ are present and are 7-jointed, 1 and 3 joints thickest, 4 and 7 sub-equal in length, and 3 a little shorter, rest shorter and sub-equal. Feet moderately long, coxæ thick, femora moderately large and about the same length as the tibiæ, which are thinner ; tarsi still thinner, ending in a claw : upper digitules rather long, ending in a knob ; lower pair about twice as long as the claw and very broad.

Maskell notes that beneath the body there is a deep red cavity between which and the food-plant to which the ♀ is attached the young run about. Abdominal lobes cordiform, more distinguishable in the young insect : anal ring surrounded by six long hairs. Long, 3—4 millims.

This species occurs on holly, ivy, ilex, and especially on the orange, and has been found throughout Europe, the United States, and New Zealand, where it does great damage, but varies much in its appearances, being in some years particularly numerous and destructive and in others much less active. The more common parasites of this species in the United States are *Coccophagus cognatus*, *Comys bicolor*, and *Encyrtus flavus*.

LECANIUM COFFEÆ, Walker.

Lecanium coffeæ, Walker, List Hom. B. M. iv, p. 1079, (1852) : Nietner, Enemies coffee-tree, p. 6 (1861) : Targioni-Tozzetti, Cat., p. 37 (1869) : Signoret, A. S. E. F. (4 sér.) viii, p. 849, t. 1, f. 16 *a*, (1868) ; (5 sér.) iii, p. 435, (1873).

This is the 'brown scale-insect' or 'brown or scaly-bug' of writers. Walker (l. c.) describes it simply as "ferruginous, flat, scale-like, almost round, with transverse ridges : long 2 millims," and remarks that it destroys the Coffee plantations in Ceylon. ♂. Clear light pinkish colour, slightly pubescent: head transversely ovate-rotundate, narrowed, and angular in front; eyes large, black; ocelli two, small, lateral; antennæ 9-jointed, the second joint smallest, third longest, thence decreasing to the tip. Thorax ample, cordiform, narrowed in front: wings two, hyaline, with two veins, of which the subcostal vein is dark pink, not folded straight down the back when at rest, but half spread out: scutellum ample, transverse, rounded at the apex. Abdomen triangular-subcylindrical, of shrivelled appearance, with two lateral points, one central appendage, and two long, thin, white filaments at the extremity.

♀. Apterous, tortoise-like, yellowish, marbled with grey or light brown, sub-oval, more or less semi-globose according to age, dorsum with one elevated longitudinal and two transverse ridges, uneven: cleft behind, at the extremity of a split bifid, anal flap or lobe of a brown colour: eyes marginal, black: antennæ 7-jointed, the third joint longest: the rostrum with one long sucking bristle. Old individuals are light brown with a dark margin, smooth, semi-globose, fixed to the branch.

Larva of ♀ has two anal filaments, which are lost when the insect undergoes the final moult. The larva and pupa in ♂ and ♀ are active, except the pupa of the ♂, which is plentiful on the underside of the leaves, where the long narrow oval shell under which it rests is easily discovered: this shell is transparent and composed of nine plates of which three are central and three are on either side. Sometimes the entire underside of the leaves is covered with nothing but the pupa of the ♂ all dead. The eggs are oval and of a pinkish colour and are not actually laid by the ♀, but when they are matured the parent dies, her whole interior forming one mass of eggs protected by the shell. The above is Nietner's description of the form found in Ceylon. Signoret describes specimens from Bahia thus:—Brown-red, hemispherical, margins a little flattened: antennæ 8-jointed, third joint longest, 4 and 5 equal, 8 longer than the two preceding taken together: feet long, tibiæ one-third longer than the tarsi, which are articulated: claw very stout, the two lower digitules horn-shaped: anal ring with eight very long hairs, above on the abdomen six hairs, two on each segment at the tip: the stigmatic hairs of the margin very long, very obtuse at the tip and accompanied by two very short ones; the hairs of the circumference obtuse at the tip, greatest length, 2½; broad 1½ millims. This insect is found on coffee, tea, orange, *Gardenia*, and many jungle trees.

The brown scale-insect is also infested by Hymenopterous insects, perhaps more than the white scale insect or the black scale. These parasites are very minute and are for the most part of a brilliant metallic blue or green or gold.

LECANIUM NIGRUM, Nietner.

Enemies of Coffee-tree, p. 9 (1861). The black scale.

♀. Shield-like, much larger than the brown scale, colour from yellowish grey to deep-brown and almost black, according to age: sub-oval, dorsum with one longitudinal and two concentric oval costæ on the disc, towards the margin slightly rugose. The scale under the microscope is highly tesselated and the anal slit and flap as in *L. coffeæ*: in old ♀ the scale is black with a slight longitudinal costa.

The larva has two long, black, anal setæ and a projectile tube. ♂ scarcely differs from that of *L. coffeæ*, the head and thorax are not so bright in colour, but the wings appear more strongly hyaline. Mr. Nietner remarks that this species occurs alone and in company with the brown scale but is far less common, and Mr. Green notes its occurence on *Chinchona officinalis* and *calisaya*, *Manihot ceara*, and *Croton tiglium*. It is found with *L. coffeæ* on the coffee-tree, but only in small numbers.

Trisporium gardneri, Berkeley: *Syncladium nietneri*, Rabenhorst.

Mr. Nietner remarks that when the scales have been fairly established upon a coffee-tree, the tree becomes covered with a fine black tissue formed of a fungus (*T. gardneri*), which comes and goes after the scale and never alone. At first this fungus has the appearance of a thin, diluted blackwash, but, rapidly increasing in density, within two or three months it quite covers and blackens the leaves and other parts of the tree, finally almost resembling moss. Its period of growth seems to extend over about twelve months, when it is replaced by a young growth or both it and the scale abandon the tree, and when leaving the tree, the fungus peels off in large flakes. Mr. Nietner writes :—'As the occupation of a coffee or any other tree (by scale-insects), gives rise to the appearance of a glutinous saccharine substance (honey-dew, which is either a secretion of the scale or the extravasated sap that flows from the wounded tree, but more probably a combination of both) which disappears with the scale, and as the fungus does exactly the same, I have no doubt that its vegetation depends upon this glutinous saccharine substance." Whether Mr. Nietner's remarks regarding the appearance of the fungus be correct or not, its occurrence with species of *Lecanium* is marked in the United States, Europe (?), and New Zealand. Mr. Maskell particularly notices that plants attacked by insects of this sub-family have their leaves much blackened.

Subfam. COCCINA.

Coccides, Sign., A. S. E. F. (4 sér.) ix, p. 102 (1869); (5 sér.) iv, p. 546 (1874).

♀ varying in form and in the substance of the skin or covering: in the last stage generally inclosed in a sac or envelope secreted at the time of laying the eggs and which is cottony in *Dactylopius*, *Coccus*, &c., felted in *Eriococcus;* globose and more or less scaly or corneous in *Kermes;* calcareous in *Margarodes;* or it is naked and reclines on a cottony cushion as in *Nidularia.* The under-lip is 2—3-jointed: abdominal lobes or plates are absent, but on each side of the abdomen at the anal extremity are tubercles which carry a more or less long bristle. The segments are easily visible in the larva, less so in the adult; each segment has on each side one or more spinose appendages: antennæ vary much in the number of joints, usually six in the larval state and 6—10 in the adult: legs as in all the *Coccidæ.* In the adult ♀ one can find, by maceration in caustic potash, the antennæ sometimes deformed, the feet, but sometimes these are wanting, and the lower-lip always. The ♂ only differ from the ♂ of the sub-family *Lecanina* in the shorter armature: they are small, with long antennæ, generally 10-jointed, filiform, pubescent; four eyes and usually ocelli: wings large, membranous, transparent: halteres 3-jointed: femora long, pubescent; tarsi one-jointed, one-clawed, usually with four digitules: abdomen more or less long and broad with a bundle of hairs on the last segment, whence proceed 2—4 very long threads formed of a white, fragile secretion.

The following subdivisions are suggested in this subfamily:—

1. Species having the globular shape of some forms of *Lecanium* and easily taken for them, but with a multiarticulate under-lip and without the Lecanid abdominal lobes in the larva, though possessing them in the adult stage:—*Kermesaria.*

2. Species of an elongate form resembling the genera of the group *Dactyloparia*, more or less pubescent: antennæ 6—7-jointed: an emargination more or less visible at the end of the abdomen between the lobes, which are furnished with 5—6 hairs, of which one is very long:—*Anthococcaria.*

3. Species varying in form and the number of joints in the antennæ, with an anal ring visible, which has 6—8 hairs and spinnerets secreting a cottony matter: tarsi and claws with digitules: 2—4 filamentary processes at the extremity of the abdomen:—*Dactyloparia.*

4. Species without an anal ring and having merely an opening at the end of the abdomen:—*Coccaria.*

5. Species with only a simple ring at the end of the abdomen: antennæ with 11 joints in the adult ♀, and 10 in the ♂:—*Monophlebaria*.

Subdivision KERMESARIA.

Sign., A. S. E. F. (5 sér.) i, p. 425 (1871); iv, p. 547 (1874): Comstock, Rep. Dep. Agr. U. S. for 1880, p. 337.

This group has been formed for the genus *Kermes*, which connects the *Coccina* with the *Lecanina*. At first sight the insect hardly appears to differ from the sixth group of the genus *Lecanium* (p. 281), but is differentiated thus:—Body globular more or less complete or slightly truncate: in the larval state the presence of a more than one-jointed under-lip, the absence of the abdominal lobes or plates and the presence of more or less marked tubercles at the extremity, distinguish them. In the adult state, the antennæ and feet still remain almost normal, but in some species, which have reached the last stage of their life and have secreted their corneous envelope, the antennæ are sometimes deformed and the feet are sometimes absent, and the abdominal lobes resemble those of *Lecanium*. The species of the genus *Kermes* hitherto recorded have been found in Europe and the United States.

Subdivision ACANTHOCOCCARIA.

Acanthococcites, Sign., A. S. E. F. (5 sér.) v, p. 16 (1875).

This group contains those genera in which the species have an elongate form more or less pubescent, but much less so than in *Dactylopius*: antennæ 6—7-jointed; an emargination more or less visible between the lobes of the extremity of the abdomen and these lobes with 5—6 hairs, of which one is very long. In the larval state all are the same and have on the lateral margins a fringe of spiny hairs, and in some genera on the median line also. The following gives Signoret's table of the genera [l. c. p. 16].

1. Adult ♀ without legs or antennæ: rostrum arising from a curious tubercle or protuberance on the head: body resting on a cottony mass which extends beyond and covers its margins. The ♂ undergoes its changes in a small cottony envelope: antennæ 6-jointed: wings with a very small lobe near their insertion: halteres with a single bristle: head with 4—6 ocelli. Larva with 6-jointed antennæ in ♀, 7-jointed in ♂: adult has the dorsum covered with a transparent waxy and knobbed secretion:—*Nidularia*, Targ. [Sign., l. c. p. 17].

2. Adult ♀ with legs and antennæ: rostrum not arising from the usual place between the first pair of feet, without a tubercle: body

surrounded with a white cottony substance covering all except the dorsal disc :—*Gossyparia*, Sign. [l. c. p. 20].

3. Adult apodous, antennæ in form of a short many-jointed stump, body elongate, cylindrical, thrice longer than broad : rostrum in young with a 2-jointed under lip : anal ring large, in form of a broad circle, finely punctured and striated transversely, with six hairs not extending beyond the abdomen :—*Antonina*, Sign. [Sign., l. c. p. 24 : includes ? *Laboulbenia*, Licht., M. T. Schwer. Ent. Ges. v, p. 299, 1878].

4. Adult in most advanced stage with only last pair of feet, antennæ absent : body globular, rounded ; abdomen not visible ; a very great mass of white cottony matter secreted by the insect and forming an appendage :—*Capulinia*, Sign. [l. c. p. 27].

5. Species enclosed in a simple felted envelope and preserving the members during all stages of their existence : antennæ in ♀, 6-jointed ; in larval ♂, 7, and in adult ♂ 10-jointed :—halteres with a simple bristle : style very short : knobbed hairs on some of the joints of the antennæ :—*Eriococcus*, Targ. [Sign., l. c. p. 29].

6. Species enclosed in an envelope which is pointed at both ends and of a greyish-yellow : *Acanthococcus*, Sign. [l. c. p. 34].

7. Species naked until fully grown, then the ♀ forms a dense sac of waxy matter within which the eggs are laid : the full-grown ♂ makes a similar sac or envelope within which it undergoes its last metamorphosis ; antennæ of larva and adult ♀, 7-jointed : anal ring with eight hairs : four digitules :—*Rhizococcus*, Sign. [l. c. p. 36 : Comstock, Rep. Dep. Agr. U. S. for 1880, p. 339].

8. Add perhaps species in which the adult ♀ has the body egg or pear-shaped, not depressed, covered with a waxy envelope : antennæ and feet absent : rostrum very short, conical, not jointed : anal segment semiglobose, rest of the body of a more firm consistence and furnished with an anal chitinous cone emitting a long, hollow filament formed from the secretion : larva with 6-jointed antennæ and feet :—*Xylococcus*, Löw [Verh. Zool. Bot. Ges. Wien. xxxii, p. 274, 1882].

9. Also add species in which the adult ♀ is inclosed in a sac elliptical in outline, very convex above, formed of a continuous waxy secretion : ♀ itself elliptical, with neither legs nor antennæ : two anal tubercles : anal ring with eight spines : under-lip 2-jointed :—*Cerococcus* Comstock [Rep. Dep. Agr. U. S. 1881-82, p. 213].

10. Add also a species forming a connecting link between the *Coccina* and the *Phylloxera* group of the *Aphidæ* having the head, thorax, and abdomen reunited as in the latter : ♂ entirely apterous :—*Ritsemia*, Licht. [Compt. Rend. Ac. Sc. France lxxxviii, p. 870, 1879].

Subdivision DACTYLOPARIA.

Dactylopites, Sign., A. S. E. F. (5 sér.) v, p. 305 (1875).

This group contains those species in which the genital ring is visible and has 6—8 hairs, and spinnerets secreting a cottony substance that form a more or less truncated point at the anal extremity of the abdomen between the abdominal filamentary processes of which two or four are also present. On the tarsi and claw are digitules dilated at the tip.

1. Larval ♀ with antennæ having 6-joints, adult ♀ with 8; larval ♂ with 7 joints: four digitules: anal ring with six hairs:—*Dactylopius*, Sign. [l. c. p. 306].

2. Larval ♀ with antennæ having 6 joints, adult ♀ with 9; larval ♂ with 7 joints: only two digitules:—*Pseudococcus* Westw., Sign. [l. c. p. 328: Comstock, Rep. Dep. Agr. U. S. for 1880, p. 345].

3. Larval ♀ and adult ♀ with antennæ having 6 joints; larval ♂ with 7: tarsi without digitules:—*Ripersia*, Sign. [l. c. 335].

4. Larval ♀ with antennæ having 6 joints; adult ♀ and larval ♂ with 8: lower lip very short, rostral filaments very short:—*Westwoodia*, Sign. [l. c. 337].

5. Extremity of abdomen with four filamentary processes, no digitules:—*Oudablis* [Sign. l. c. 338; B. S. E. F. (6 sér.) i, p. clvii, 1880: includes *Boisduvalia*, Sign.].

6. Eyes in ♀ prominulous; in ♂ there are twelve, of which four are large, and eight ocelli: no digitules dilated at the tip: eight hairs on the anal ring: two bristles on the halteres: antennæ with nine joints in ♀, ten very long in ♂:—*Puto*, Sign. [l. c. 341, and 395, includes *Putinia*, Sign.].

7. To this may be added the genus *Tetrura*, Licht. [B. S. E. F. (6 sér.) ii, p. lxxv, 183] to contain *C. rubi*, Schranck.

Genus DACTYLOPIUS, Costa, Sign.

Faun. Regn. Nap. Gallins. p. 15 (1835): Sign. A. S. E. F. (5 sér.) v, p. 306 1875: [includes *Diaprostocetus*, Costa, olim].

Antennæ of the larval ♀ with six joints; of the larval ♂ with seven joints; of the adult ♀ with eight joints: six hairs on the anal ring at the extremity of the abdomen: two digitules on the tarsus and two on the claw.

DACTYLOPIUS ADONIDUM, Linn.

Coccus adonidum, Linn., Syst. Nat. p. 740 (1767): Geoffroy, Ins. i, p. 511 (1764): Fabricius, Syst. Ent. p. 743 (1775); Spec. Ins. ii, p. 393 (1781); Mant. Ins. ii, p. 318 (1787); Ent. Syst. iv, p. 224 (1794); Syst. Rhyng. p. 307 (1803);

Gmelin ed. Syst. Nat. i (4) 2215 (1788): Olivier, Enc. Méth. vi, p. 91 (1791): Haworth, Trans. Ent. Soc. i, p. 308 (1812); Bouché, Schädling Gart. Ins. p. 51. (1833): Burmeister, Handb. Ent., ii, p. 74, t. 2, f. 2 (1835): Amyot and Serville, Hist. Nat. Ins. Hém. p. 629 (1843); Walker, List Hom. B. M. iv, p. 1080 (1852).

Pediculus coffeæ, Lederman, Microscop, t. 9 (1762).

Diaprostocetus adonidum, Costa, Prospetto di una &c. (1828).

Trechocorys adonidum, Curtis, Gardiner's Chron. iii, p. 443 (1843).

Coconidia, Amyot, A. S. E. F. p. 476 (1848).

Pseudococcus adonidum, Nietner, Obs. Enemies of Coffee-plant Ceylon, p. 4 (1861).

Dactylopius adonidum, Targioni-Tozzetti, Cat. p. 32 (1868): Signoret, A. S. E. F. (4 sér.), viii, p. 842 (1868); (5 sér.) v, p. 307, t. 6, f. 1, 1*a*, *a d* (1875): Comstock, Rep. Agr. Un. States for 1880, p. 341, t 11, f 1, 1*a-d* (1881).

The species which Signoret assigns to *D. adonidum*, Linn. is described thus:—

♀. Long, 2½—3; broad, 1½ millims. White, a little yellowish: a median dorsal band, brown; feet and antennæ a little brownish, powdered with a large quantity of farinose matter secreted by spinnerets or pores scattered over the entire body: besides this, each lateral lobe or segment presents a secretion which forms a more or less long woolly appendage around the entire body, increasing in length towards the end of the abdomen, where there are four much larger appendages, of which the two internal are the longest and extend to end of, or beyond the body. Antennæ 8-jointed, of which the eighth is the longest, then the third and second, the fourth and fifth are of equal length and shortest, the sixth and seventh a little longer than the fourth and fifth; there is a slight pubescence especially at the tip of each joint. Feet rather long with a rather spare pubescence; tibiæ twice as long as the tarsi; claw stout and long with slender digitules, which are furnished with a very small knob at the tip, abdomen with a more or less distinct and rounded cicatrix on the sutures of the 1-2 segments and the median line; an oblong cicatrix on the sutures of the 5-6 segments on each side nearer the margin than the median line; on each segment a large number of spinnerets in the shape of rounded dots and some scattered hairs. Each lateral lobe presents a space with rounded spinnerets and two more or less stout, conical spines which form the apparatus for secreting the cottony matter of which each lateral appendage is made: those of the lobes of the extremity of the body have a much larger number of spinnerets and the two conical spines are also much larger; a little lower down, two hairs arise, of which one is large, around these is condensed the secretion furnished by the spinnerets. The genito-anal ring is very broad, punctured, and furnished with six rather long hairs.

♂. The larvæ undergo the change in a cottony envelope and their antennæ are 7-jointed. The adult is long of a brown neither yellow nor red, with the segments paler; as it grows older, the colour deepens especially on the head and corneous portions of the pronotum: tegmina long, broadly rounded, of a more or less deep grey, reddish towards the side: halteres long, yellow, with a single recurved bristle at the tip: pronotum long, rounded on the sides, straight in front, rounded behind, with a blackish arch on the mesonotum. Abdomen long, ending in a rounded, thick armature furnished with some hairs: lateral lobes of each segment presents two long filaments of a white cottony substance secreted by a group of rounded spinnerets, in the midst are two long hairs and a smaller, around which the matter secreted is condensed; the lobes above have much smaller ones with but 2—3 rounded spinnerets. Head thick, in the form of a ball or a little truncated in front, more convex beneath than above and pubescent, except on the pigmentary circle of the eyes and ocelli of which there are perhaps four. Feet long, with a broad tarsus, flat, pubescent, presenting a very long and narrow hook or claw; the digitules of the tarsi are not thicker than ordinary hairs and have a very small knob at the tip.

♀. The larva varies in size with its age, is flatter, of the same elongated form and same colour but the antennæ are 6-jointed.

♂. The larva is of a uniform shape but more elongate and the antennæ are 7-jointed. The moult preceding the imago state is often indicated by a rolling up internally of the rostral filaments and sometimes by the future antennæ and tibiæ, the latter of which are already indicated interiorly in the members of the larva. (*Sign.*).

Mr. J. Nietner (*l. c.*) describes the Ceylonese form of this insect as follows :—

♀. Apterous, oval, brownish-purple, covered with a white mealy powder which forms a stiff fringe at the margin (one tooth or tuft to each segment on either side) and at the extremity of the abdomen 2 setæ. The dorsum has three longitudinal and a number of transverse corrugations, the latter corresponding with the number of segments: upon each of the three longitudinal corrugations, the mealy secretion forms a sort of ridge-cap. The antennæ, legs, and rostrum are of a light brown colour and slightly pubescent: the antennæ are setaceous, 8-jointed of which the last joint is the longest, nearly as long as the legs and porrect. The rostrum is situate between the first pair of legs, having a few hairs but no sucking bristles at the tip.

♂. Light sordid brownish, slightly pubescent: head rather square, enlarged behind and rounded off at the poterior angles; eyes prominent, black; ocelli two, small, lateral; antennæ 9-jointed, second joint longest, third shortest, 4—9 subequal: [mouth externally represented by two black knobs, resembling blunted mandibles? these are eyes]. Thorax ample, oblong-quadrate, enlarged at the shoulders: wings two, ample, two-veined, hyaline strongly iridescent, laid straight down the back, half overlapping each other when at rest: scutellum ample, transverse, rounded at the apex. Abdomen sub-cylindrical, of shrivelled appearance, with two long anal setæ, which are slightly curled and of a mealy, brittle consistence, being much smaller than the ♀, about 1¼ millims long and in appearance resembles a small may-fly.

♀. Larva or pupa resembles the perfect insect but on a smaller and less perfect scale.

♂. The pupa has the wings and anal setæ rudimental. These imperfect ♂ resemble young *Psoci* or *Aphides* but they carry the antennæ turned backwards along the sides of the body. The larva and pupa are active and can move about.

Nietner (*l. c.*) has the following observations on the *D. adonidum* of Ceylon:—"The insects, in all stages of development, are found all the year round, the propogation being continuous. It appears to me, however, that the ♂ are more plentiful about June and January than at any other season. They affect dry, hot localities, and are found both on the branches and on the roots of the trees to about one foot below the surface of the ground. The eggs are actually laid and enveloped in a white cottony substance and are oval and of a yellow colour." Perhaps there are two species as some are rather flatter and more densely covered with meal, but these may be only local varieties. The white scale-insect attacks orange, guava, and other trees, as well as coffee, and is also found on beet-root and other vegetables. It is also infested by parasites, amongst which Mr. Nietner mentions the occurrence of a small mite named by him *Acarus translucens;* a similar mite is reported from America and New Zealand as infesting the egg-envelope of these insects. Mr. Green writes:—"This insect attacks a large number of plants. Upon coffee it is found chiefly among the clusters of berries, and, in this position, not content with the primary damage done by itself, it attracts a species of ant which builds its nest inclosing the colony of *Dactylopius*. On the estates, it is most destructive to young Chinchona plants, frequently killing them outright. It is preyed upon by the larvæ of several beetles and also by the larva of *Lucius epius*, a small Lepidopterous insect."

Subdivision Coccaria.

Sign. A. S. E. F. (5 sér.) v, p. 346 (1875).

This group is confined to the genus *Coccus*, which includes the cochenille insect, *Coccus cacti* of authors, used as a dye. It has not the anal ring of the previous group, which is here replaced by a simple hairless opening placed at the extremity of the abdomen: eyes smooth, two ocelli: antennæ in the adult ♀ only 7-jointed; larval ♀ with 6 and larval ♂ with 7 joints. The species recorded are from N. and S. America, China, Australia, New Zealand, and Rodriguez island.

Subdivision MONOPHLEBARIA.

Monophlebites, Sign. A. S. E. F. (5 sér.) v, p. 350 (1875.)

This group is formed for those species of the sub-family *Coccina* in which the ♀ has 11 joints in the antennæ and the ♂ has 10 joints; each of these joints has a node or swelling and a whorl of hairs which makes it appear double and has thus led some authors to give 22—25 joints to the antennæ: the eyes are compressed with numerous facettes but there are no ocelli in the ♂: instead of the ciliated anal ring of the *Dactyloparia*, we have a single ring placed before the extremity of the abdomen. The group includes the following genera:—

1. Covered with a cottony matter varying in colour and with a secretion of still larger filaments: two horn-shaped digitules on the claw and two on the tarsus but without knobbed tips: antennæ in ♀ with 11 joints; in larva 6-jointed with a long pubescence: genital apparatus ending in a tube internally with a reticulated ring like a sphincter and without hairs at its extremity:—*Icerya*, Sign. [l. c. 351: Comstock, Rep. Dep. Agr. U. S. for 1880, p. 347].

2. As preceding: the pubescence very long with two knobbed hairs on the last joint of the antennæ: no digitules:—*Guerinia*, Targ. [Sign. l. c. 352].

3. Only nine joints in the antennæ, rest as in *Monophlebus*:—*Drosicha*, Walker. [Sign. l. c. 353: Walker, List Hom. B. M. Sup. p. 306, 1858].

4. Antennæ very long; eyes reticulated: lateral margins of the abdomen in the ♂ without appendages:—*Leachia*, Sign. [l. c. 359].

5. Antennæ with 11 joints in ♀, 10 in ♂: no digitules but simple hairs: lateral margins of the abdomen in the ♂ with rounded tubular appendages: antennæ in ♀ conical, moniliform with a very short pubescence:—*Monophlebus*, Leach. [Sign. l. c. 363].

6. Body covered with a white secretion: antennæ 11-jointed, conical: feet stout, claws short, no digitules: a spare pubescence in form of spines on the inner side of the feet and of hairs on the outer side: teguments with rounded spinnerets mingled with some hairs and light semitransparent spaces:—*Ortonia*, Sign. [l. c. 367].

7. Adult ♀ with 11-jointed antennæ; anal tubercles wanting or obsolete: no rostrum but merely an œsophageal opening:—*Cœlostoma*, Maskell [Trans. New Zeal. Inst. xii, p. 294, 1880].

Genus MONOPHLEBUS, Leach, Sign.

Monophlebus, Leach: Westwood, Arc. Ent. i, p. 22 (1845); Walker, List Hom. B. M. iv, p. 1088 (1851): Sign., A. S. E. F. (5 sér.) v, p. 363 (1875).

Species in which the ♀ has eleven joints in the antennæ and the ♂ but ten: eyes reticulated: no digitules on the tarsi or claws, the lateral margins of the abdomen in ♂ with tubular rounded appendages [not plates]: antennæ in ♀ conical, moniliform, with a very short pubescence. ♂ with wings having a single vein which bifurcates sending out one branch which follows the costal margin and another which trends towards the middle of the internal margin but does not reach it.

MONOPHLEBUS ATRIPENNIS, Klug.

Monophlebus atripennis, Klug, Burm. Handb. Ent. ii, (i) p. 80 (1835): Westwood, Arc. Ent. i, p. 22 (1845): Walker, List. Hom. B. M. iv, p. 1088 (1851): Sign., A. S. E. F. (5 sér.) v, p. 364 (1875).

Adult ♂ fuscous-black: abdomen, scutellum and base of wings obscurely coccineous, with a somewhat frosted white appearance: antennæ longer than the body, very hairy: wings piceous, with two hyaline-white lines: abdomen flat, hairy, incisions between the segments deep, and two flesh coloured, apical, hairy (a millim. long) appendages (Westw.). Body long, 7½ millims.

Reported from India, Java.

MONOPHLEBUS DUBIUS, Fabr.

Chironomus dubius, Fabr., Syst. Antliat. p. 46.

Monophlebus fabricii, Westw., Arc. Ent. i, p. 22 (1845): Sign., A. S. E. F. (5 sér.) v, p. 365 (1875).

Monophlebus dubius, Walker, List Hom. B. M. iv, p. 1088 (1851).

Adult ♂, deep black, shining, margin sanguineous: abdomen black; apex flat, bifid, rufous; lobes with three elongate porrect hairs: wings deep black, with two hyaline-white lines; feet black (*Westw.*).

Reported from Sumatra.

MONOPHLEBUS LEACHII, Westwood.

Monophlebus leachii, Westw., Zool. Journ. ii, p. 452: Arc. Ent. i, p. 22, t. 6, f. 1 (1845): Walker, List Hom. B. M. iv, p. 1089 (1851): Sign., A. S. E. F. (5 sér.) v, p. 365, t. 9, f. 5, 5*a* (1875).

Adult ♂ piceous black, abdomen and pronotum fuscous flesh-coloured, scutellum whitish: wings piceous with two hyaline-white lines: antennæ very long 25-jointed (?): abdomen flat, incised at the apex, the five last segments emitting on each side a long pilose appendage (increasing in length) (*Westw.*) Body long, 7: last lateral appendage 2: antennæ 8½: exp. teg. 16¾ millims.

Reported from Malabar, Pondicherry.

MONOPHLEBUS SAUNDERSII, Westwood.

Monophlebus saundersii, Westw., Arc. Ent. i, p. 22 (1845): Walker, List Hom. B. M. iv, p. 1089 (1851): Sign., A. S. E. F. (5 sér.) v, p. 367 (1875).

Allied to *M. burmeisteri*, Westw., but much smaller, covered with a white-farinose powder and with the lateral appendages of the abdomen shorter: head, antennæ, feet and dorsum of thorax brunneous-fuscous; sides of thorax and the abdomen testaceous flesh-colour, the latter furnished on each side with four short, hairy, lateral appendages, the basal very small, the apical longer and between them two about one half smaller than the last, wings fuscous, posterior margin dilated, with two hyaline-white lines: genital organ stout, cylindrical, curved, longer than the apical appendages, thicker at the apex and truncated (*Westw.*). Body long, 4—5: exp. teg. 14—15 millims.

Reported from N. India.

MONOPHLEBUS BURMEISTERI, Westwood.

Monophlebus burmeisteri, Westw., Arc. Ent. i, p. 22, t. 6, f. 2 (1845): Walker, List Hom. B. M. iv, p. 1089 (1851): Sign., A. S. E. F. (5 sér.) v, p. 367 (1875).

Adult ♂ piceous-black; pronotum and abdomen fuscous flesh-colour; scutellum and a band between the wings, whitish: wings broad, piceous, a little paler at the base, and with two hyaline-white lines: antennæ longer than the body: abdomen with five long, hairy appendages on each side. Differs from *M. leachii*, Westw., in its shorter wings, posterior margin more rounded and longer abdominal filaments (*Westw.*). Body long, 5—6: cum teg. 16: exp. teg. 13-14 millims.

Locality unknown but most probably N. India.

The following genera belonging to the sub-family *Coccina* are for various reasons not yet arranged under any group:—*Callipappus*, Guérin; *Porphyrophora*, Brandt; *Margarodes*, Guilding; *Orthezia*, Bosc; *Walkeriana*, Sign.; *Llaveia*, Sign.

Callipappus, Guérin, has the eyes with facettes found in the genus *Monophlebus* and the anterior feet are like the rest: it has numerous fragile filamentary appendages secreted by the two penultimate segments as in *Porphyrophora*. The ♂ has antennæ with 11 joints, sometimes only 10, each joint becoming more and more long from base to tip: eyes with facettes, below them an ocellus: abdomen slightly lobed on the sides: genital organ very long, twisted several times and like a portion of the intestine accidentally protruded: above and at the tip of the 5—6 segment are a number of spinnerets forming transparent fragile filaments in shape of a tuft that extends well beyond the abdomen: feet long, tarsus one-third shorter than the tibia and having at the tip a small supplementary articulation; a single claw with a hair on the inner and outer face: halteres broad and stout with a small hook at the extremity, on the side. The ♀ has 10-jointed antennæ, of which the first is very broad and short, the second as broad as long, and the rest increase in length and diminish in breadth: rostrum a little below the insertion of the first pair of feet, which are like the rest. The single species recorded under this genus comes from Australia [Sign., A. S. E. F. (5 sér.) v, p. 374, 1875].

Porphyrophora, Brandt, has, in the ♂, antennæ moderately long, 9—10-jointed: eyes very large with facettes, touching each other beneath: first pair of feet short; tarsi, tibiæ, and claws not longer than the femora; the claw soldered to the tarsus; the other feet as usual, but no digitules, though all the tibiæ and tarsi have some spiny hairs on the internal margin: 5—6 segments of the abdomen, above and towards the upper margin, have a band or row of spinnerets whence arise a large quantity of light, transparent filaments that form a tuft extending well beyond the abdomen: the latter has at the anal extremity a stout elongate tubercle furnished with a hook-shaped style of which the free portion is fine and long: wings very large: adult ♀ is proportionately much stouter than the ♂ and has no trace of a rostrum: in the larva, the rostrum appears between the intermediate pair of legs. The species hitherto recorded of this curious genus belong to Europe and Asia Minor and include the *P. polonica* and *P. hamelii* which are used for dyeing [Sign., A. S. E. F. (5 sér.) v, p. 377, 1875].

Margarodes, Guilding, includes a curious West-Indian species which is inclosed in a calcareous, nacreous, envelope of such consistence as to be used as a bead for necklaces, hence its vulgar name *perle de terre* [Sign., A. S. E. F. (5 sér.) v, p. 385, 1875]. A species has been recorded from S. India. Specimens of Indian and W. Indian puparia are in Indian Museum.

Orthezia, Bosc. [= *Dorthesia*] has the ♀ apterous and the ♂ winged and eyes with facettes, but varies so much in the different stages of its existence that it is necessary to study the whole series before a particular form can be assigned to its proper stage in the development of the insect. The young larva has 6 joints in the antennæ, the larval

♀ has 7, others have 7 joints, with a sort of scape as in the Hymenoptera, and the tibia and tarsus in one, and the adult ♀ has 8 joints in the antennæ. No species of this genus has as yet been recorded from India; it is described by Signoret [A. S. E. F. (5 sér.) v, p. 386, 1875] and Douglas [Ent. Mon. Mag. xvii, p. 172, 203, 1881] and need not be further noticed here.

Genus WALKERIANA, Signoret.

A. S. E. F. (5 sér.) v. p. 390 (1875).

♀. Antennæ with ten short joints, 2 and 10 of equal length and longest: body in its normal state covered with a great number of yellow hairs mingled with a white, calcareous, lamellar secretion which, when removed, shows the body to be like that of a ♀ of the genus *Monophlebus.* The skin has rows of spinnerets differing as they produce the pilose or calcareous secretion: feet robust, of moderate length and of the usual appearance; claw stout, with a hair on each face; the tarsi one-third as long as the tibiæ which latter are longer than the femora. At the anal extremity before the margin, the genital ring is surrounded by a great mass of large hairs: above on the penultimate segment, are three cicatrices, of which the median is transverse, roundly oval, and the lateral are longitudinal oval.

WALKERIANA FLORIGER, Walker.

Coccus floriger, Walker, List Hom. B. M. Sup. p. 305 (1858).
Walkeriana flyriger, Sign., A. S. E. F. (5 sér.) v, p. 391 (1875).

Dark red, elliptical, white above, with a double row of lateral, truncated, yellowish-white, elongated appendages, and with some silky hairs: forepart with some dorsal porrect appendages of the same shape (*Walker*). Long 6—7 millims.

Signoret (l. c.) describes the adult ♀ as forming a many coloured pilose mass, yellow, more or less light, more or less tawny, with white calcareous plates strewn regularly over the upper surface and on the sides of the abdomen: the yellow pubescence is longest and most abundant on the thorax, especially on the median line, which causes the white secretion to be less visible: beneath, the entire body is entirely margined with white plates: abdomen with a slight white efflorescence; segments visible and each more and more emarginate as they approach the tip, the median part of the last segment reascending as far as the basal third of the abdomen with the anal or genital opening, around which is a considerable mass of long hairs. Antennæ blackish, with ten joints of which the first is stout and short, the second and tenth are longest; at the tip of each joint is a circlet of short hairs and there are also some on the disc; at the extremity of the tenth joint there are two long hairs and a number of short ones: feet blackish, rather long.

Reported from Ceylon.

Llaveia, Sign., created for a Mexican species which approaches *Porphyrophora* in the form of the first pair of feet and *Monophlebus* in the number of the antennæ. [A. S. E. F. (5 sér.) v, p. 370, 1875].

Tessarobelus, Montr., created for a species from New Caledonia in 1864, [An. Soc. Linn. Lyon, xi, p. 246, 1864, and Sign., A. S. E. F. (5 sér.) vi, p. 600, 1876].

Dr. J. Anderson, in his 'Letters to Banks' (1786—89), quoted by Signoret, has noticed and named several species of *Coccidæ* from the Madras Presidency, but his descriptions are so meagre and imperfect that but little use has been made of them. Amongst those mentioned by him are the following:—

1. *Coccus chlæoon*, found on the *Aira indica*, and which Signoret would refer to *Dactylopius* [A. S. E. F. (5 sér.) vi, 612, 1876].

2. *C. oogenes*, found on the *Phyllanthus emblica*, *Euphorbia hirta*, *Tinospora cordifolia*, and *Hibiscus populneus* in Madras. Anderson describes this species as purple-red and surrounded by a silky material of which the threads are as fine as those of a spider's web and can be drawn out to several inches before they break: the adult ♀ deposits her eggs in a silken receptacle and had no rostrum: the ♂ is of an amber colour [Sign., l. c. 621].

3. *C. trichodes*, found on the guava, *Anona squamosa*, *Solanum lycopersicum*, and *Hibiscus rosa-sinensis*: Signoret would refer it to *Dactylopius*. The ♀ is inclosed in silken threads which fall off when she deposits her eggs and serve to hold the young on the food-plant: ♂ of an amber colour with two opaque white filaments which are longer than the body; wings uncoloured and transparent, but after a few days slightly crimson: antennæ 10-jointed and on each joint a few hairs: segments of abdomen visible; limbs pubescent [Sign., l. c. 625].

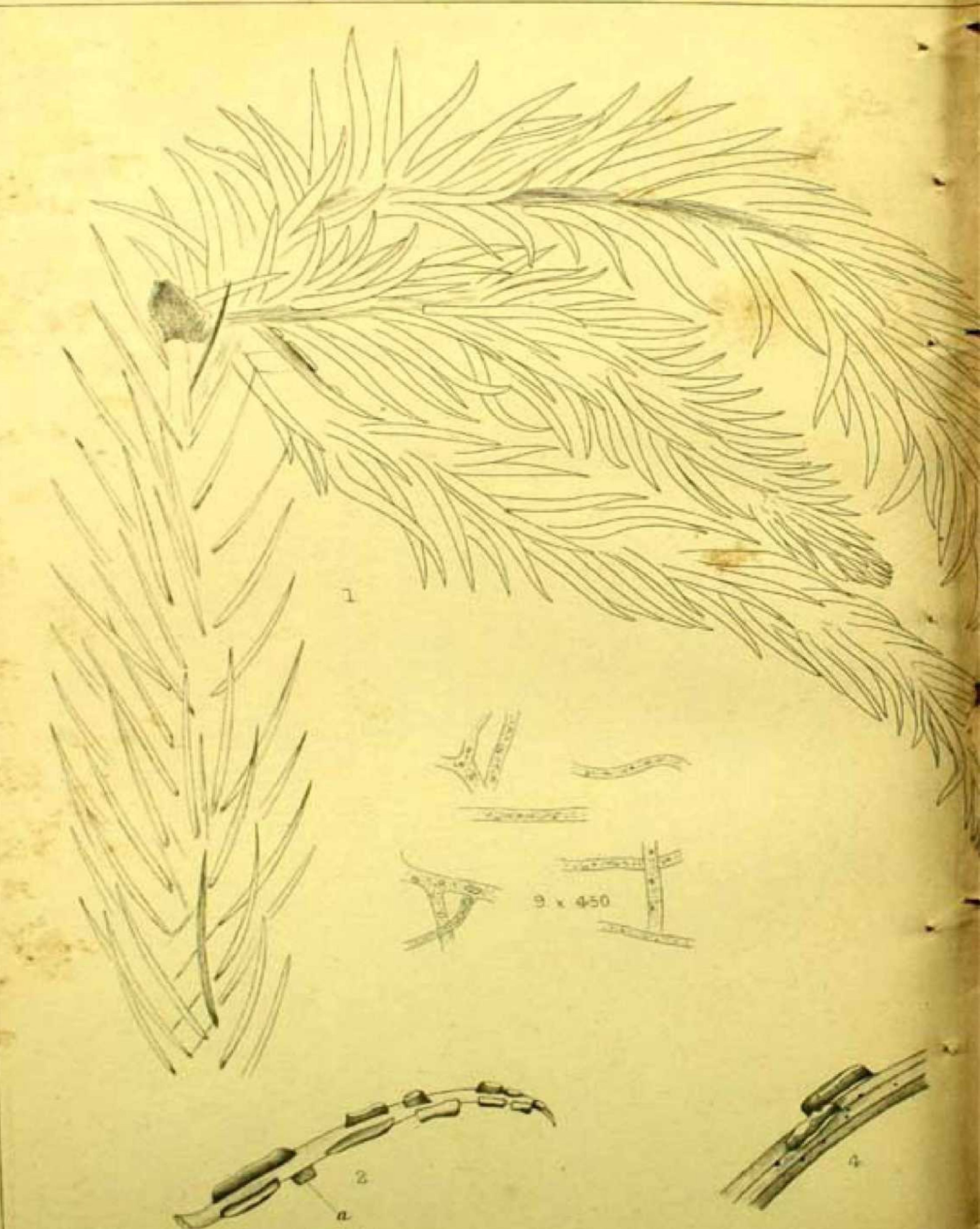
4. *C. erion*, found on the orange, *Robinia mitis*, *Hibiscus rosa-sinensis*, *Ficus indica*, *Erythrina corallodendron*, *Cocos nucifera*, and *Myrtus zeylanicus*: Signoret assigns it to *Dactylopius*: of a purple orange or a chocolate brown. [Sign., l. c. 615.]

5. *C. microogenes*, found on *Vitis vinifera* and *Galega prostrata*. Of a deep red, with a bright white silky covering, the red disappearing in the advanced stage: ♀ with the margins rimmed and becoming sometimes dull grey and sometimes scarlet: ♂ with two wings which when closed are twice as long as the abdomen and two long filaments at the anal extremity. Signoret suggests that this may be the same as *Pulvinaria vitis*, [Sign., l. c. 620].

6. *C. koleoo*, found on the egg-plant. Colour diaphanous white, except the antennæ and the extremity of the rostrum, which are of a chocolate brown: they form a cylindrical silky envelope which becomes attached to the food-plant [Sign., l. c. 618].

7. *C. diacopeis*, found on the *Citrus sinensis*: segments of abdomen deeply incised [Sign., l. c. 613].

8. *C. narcodes*, very sluggish, found on *Odina wodier* [Sign., l. c. 621].



Parker & Coward lith.

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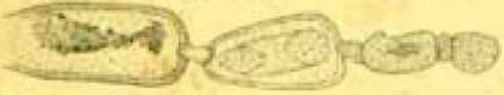

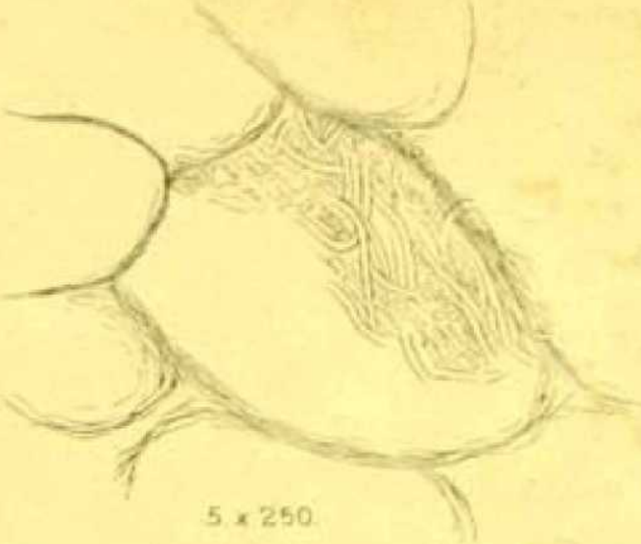

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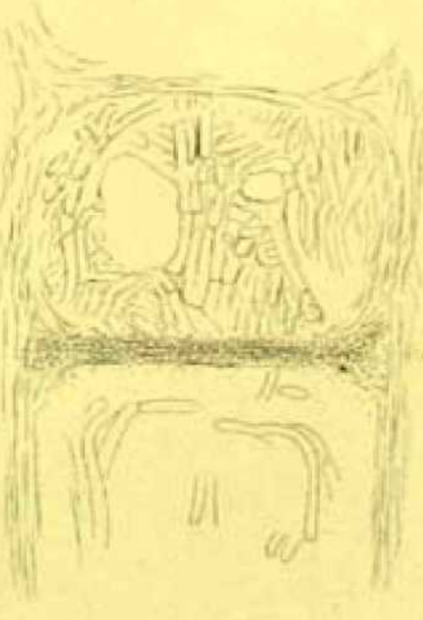

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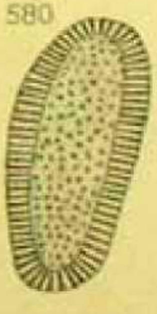

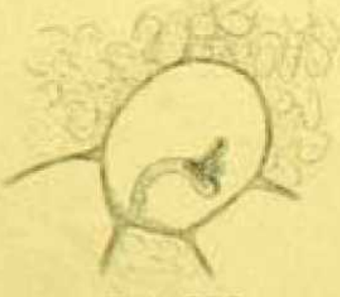

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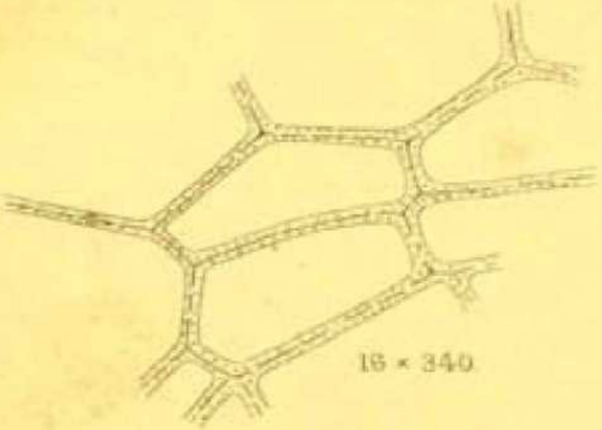

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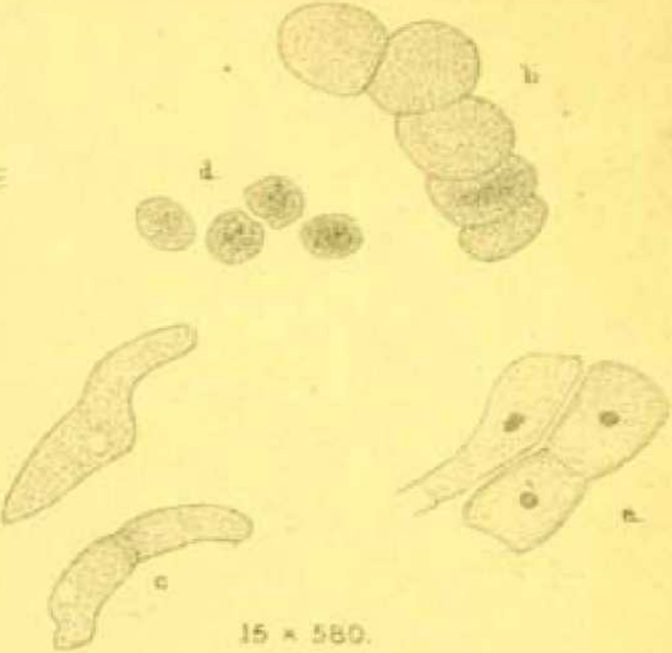

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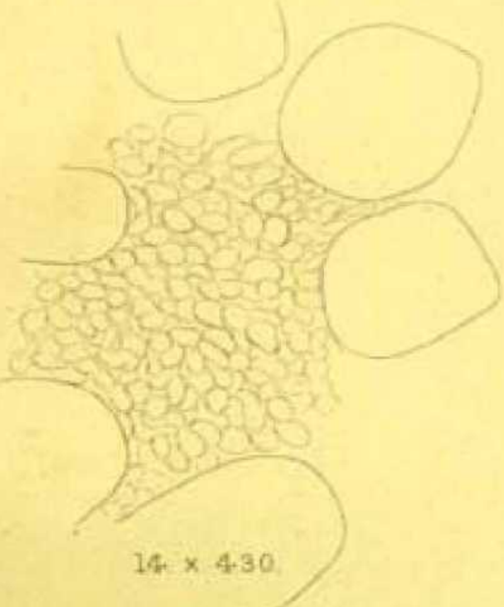

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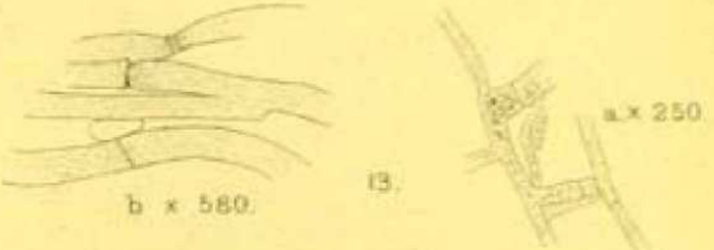

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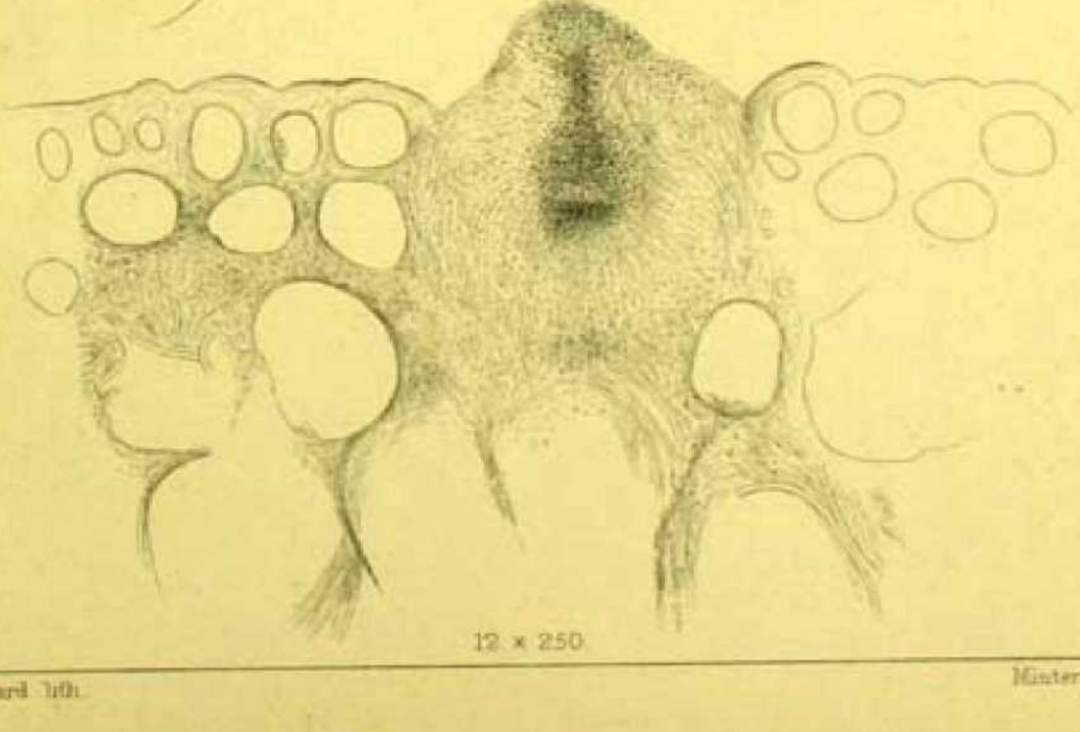

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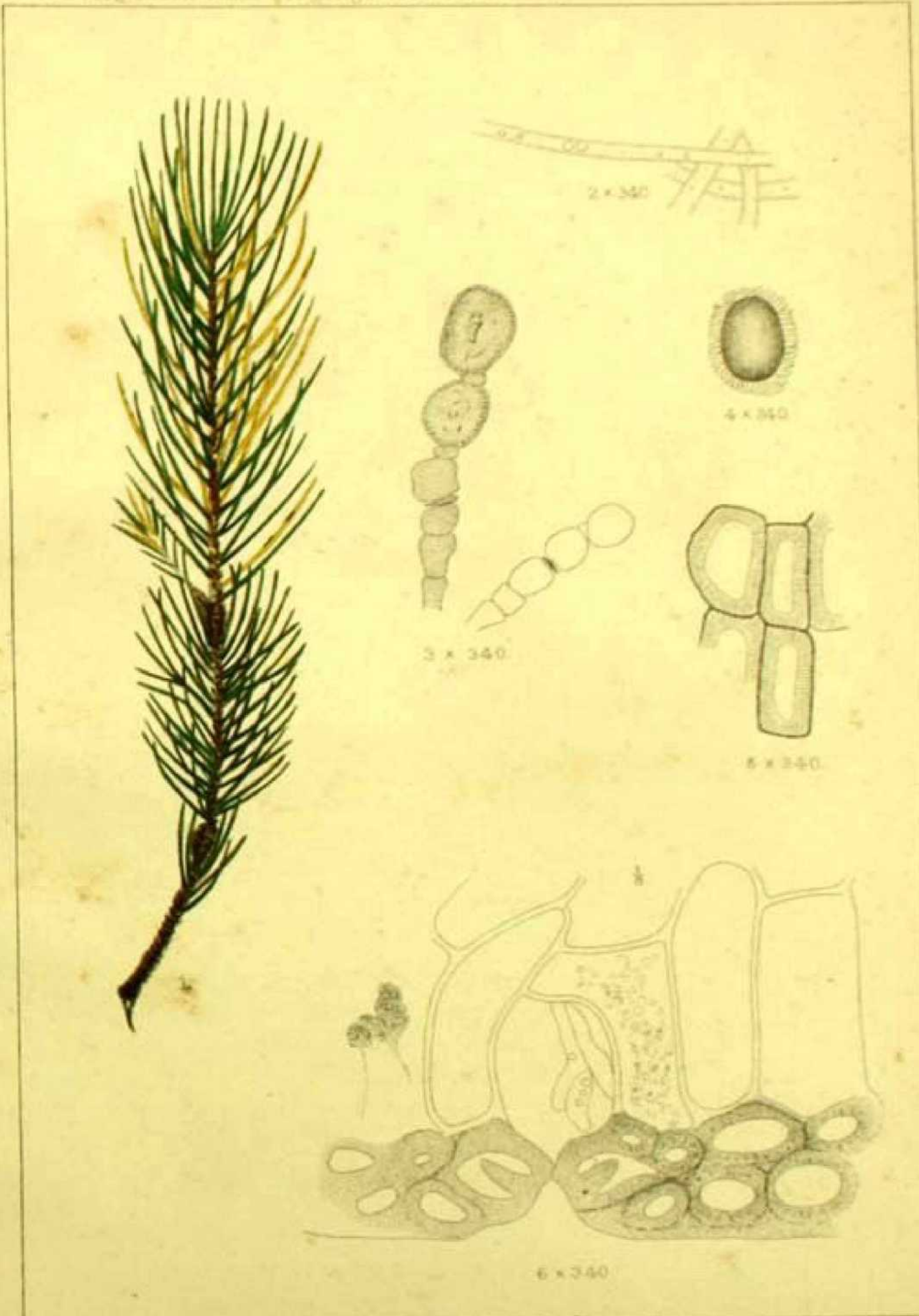
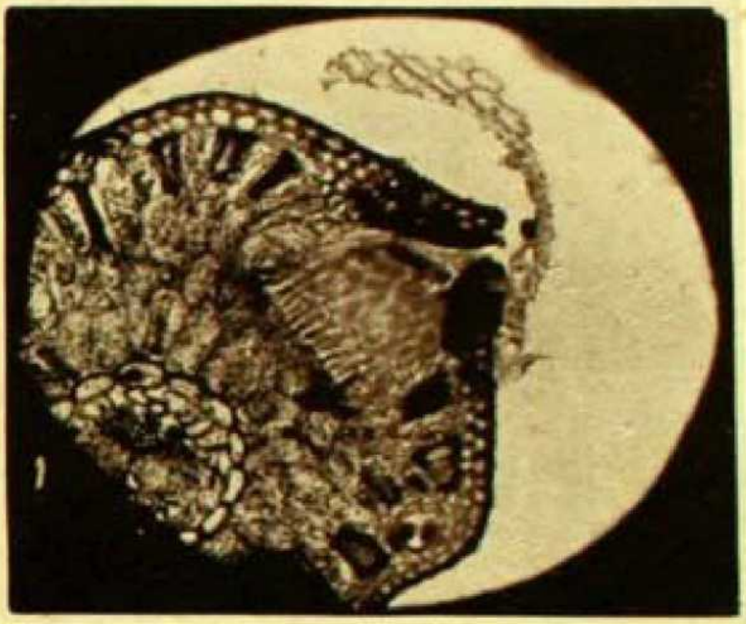
Parker & Coward lith.
Mintern Bros. imp.



Parker & Coward lith.
Mintern Bros. imp.

A. BARCLAY, Journ. As. Soc. Bengal, 1886, Vol. LV, Pt. II. PLATE V.



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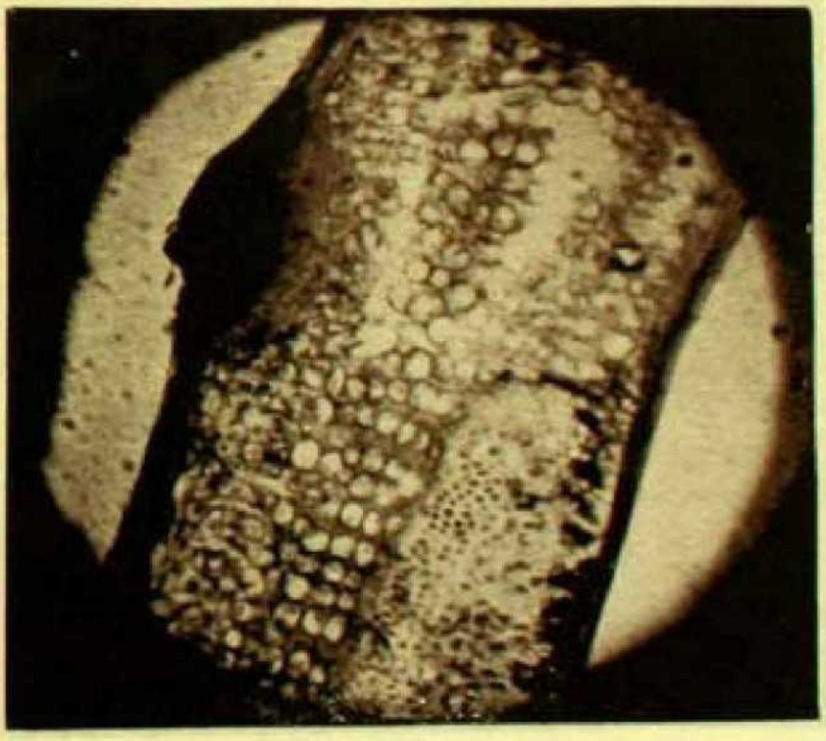

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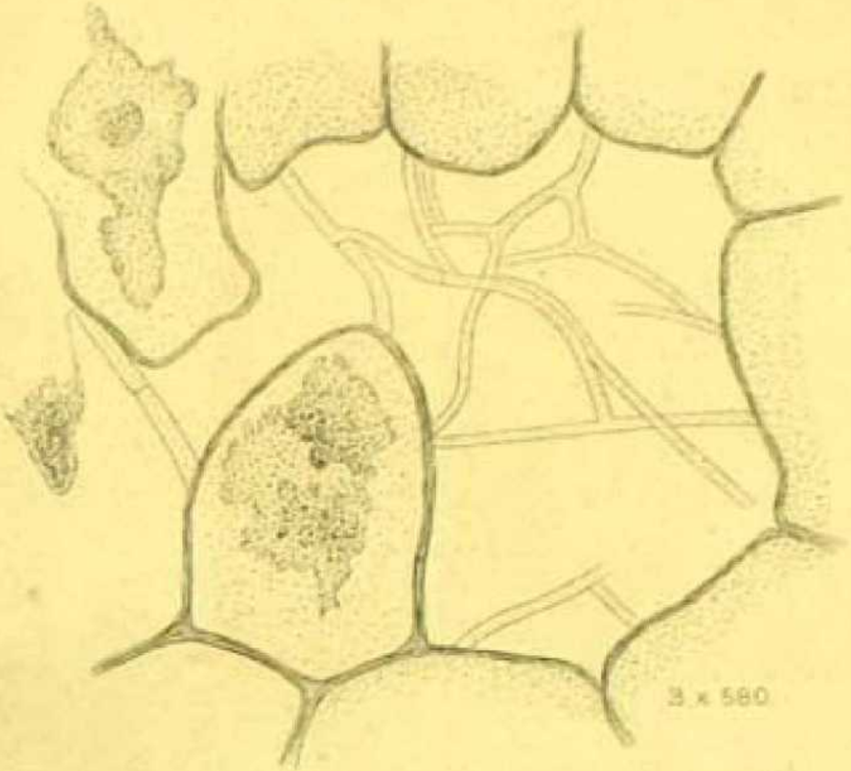
Photo-Collotype. Survey of India Offices, Calcutta. August 1886.



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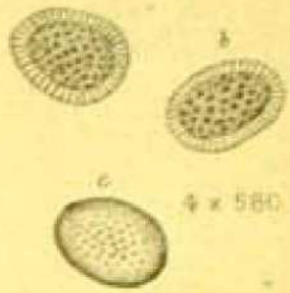

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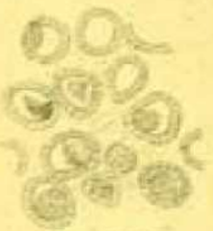

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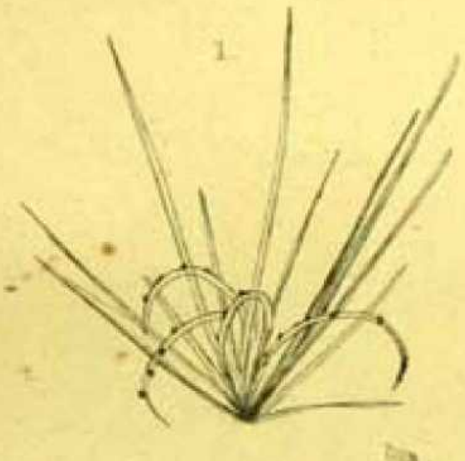

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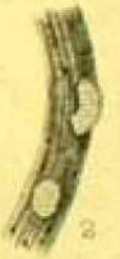

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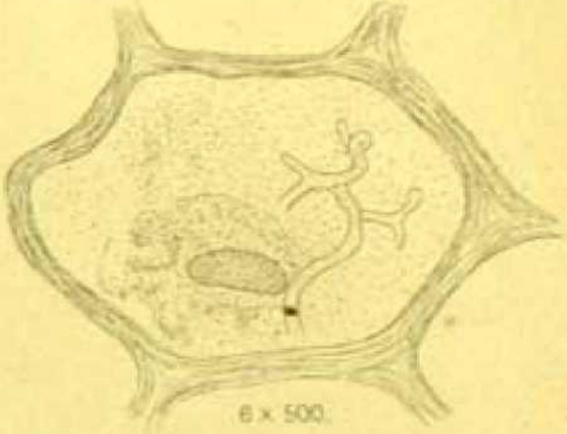

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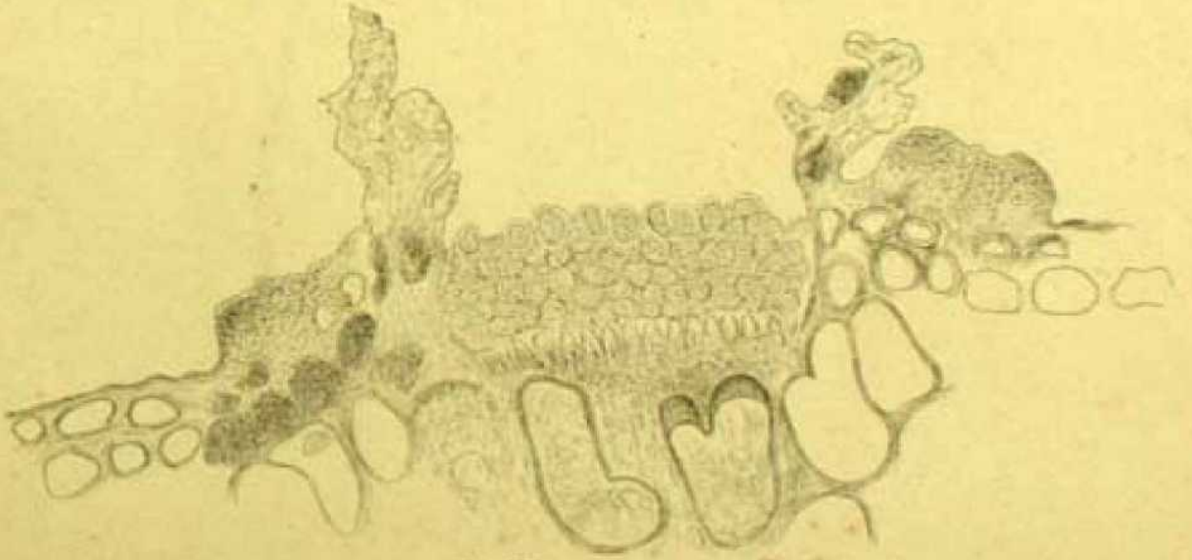

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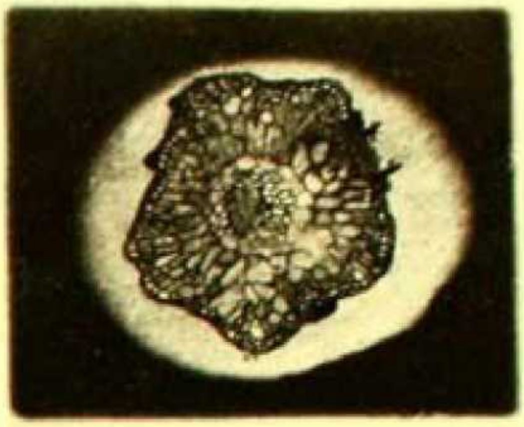
Parker & Coward lith.

Mintern Bros. imp.

A. BARCLAY, Journ. As. Soc. Bengal, 1886, Vol. LV, Pt. II.

PLATE VII.



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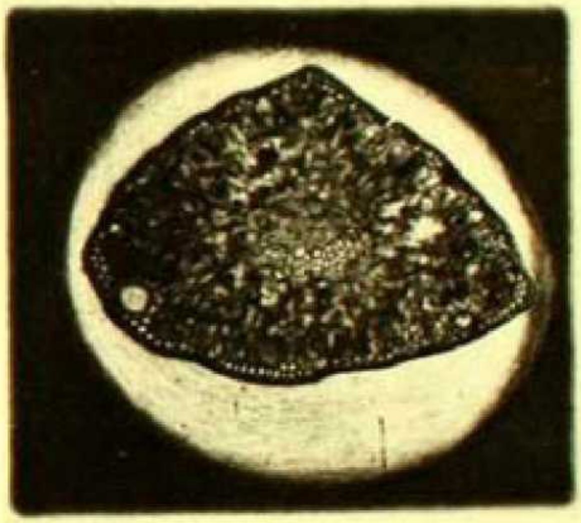

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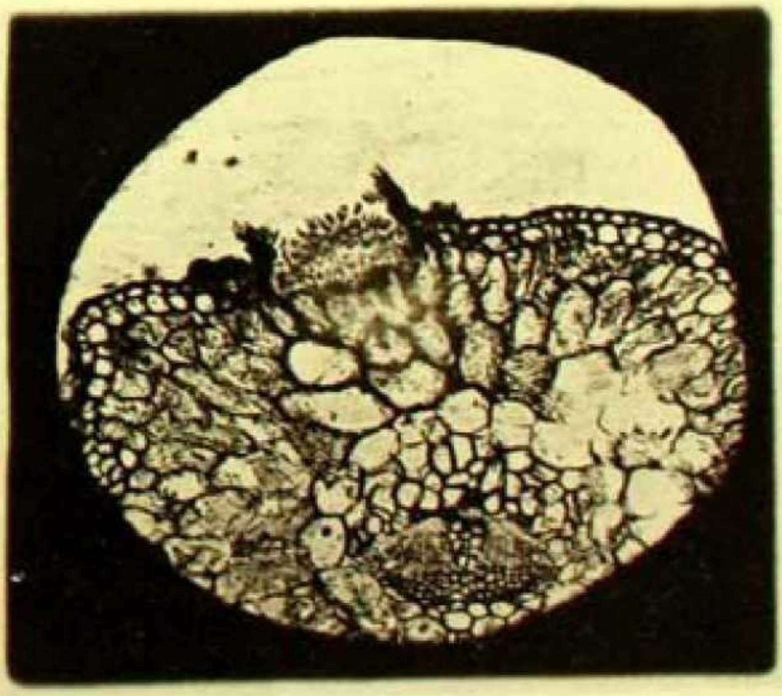

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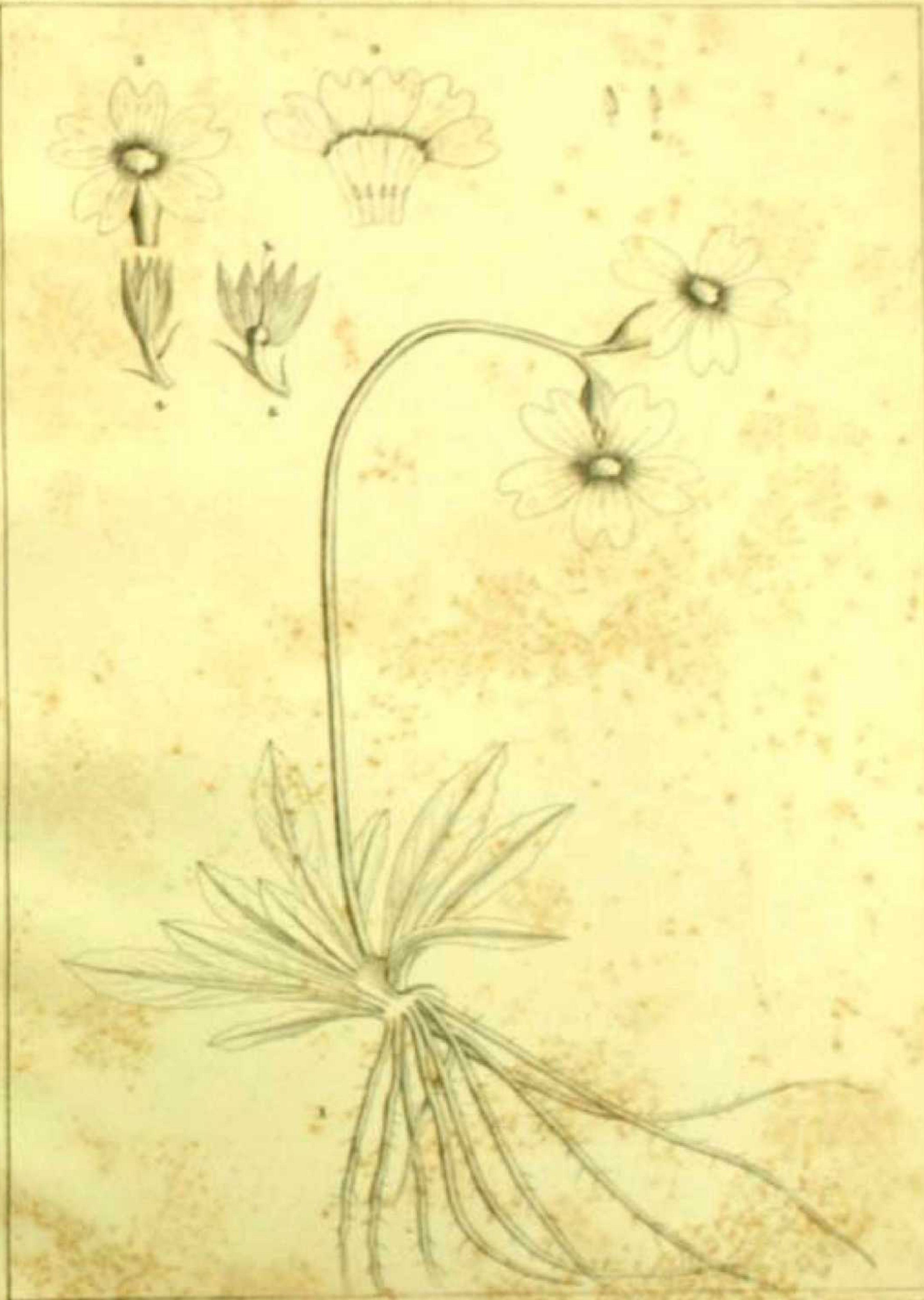
Photo Collotype.

Survey of India Offices, Calcutta, September 1886.

G. KING, Journ. Asiat. Soc. Bengal, 1886, Vol. LV, Pt. II.

Pl. IX.



[illegible]

PRIMULA PANTLINGII, King.

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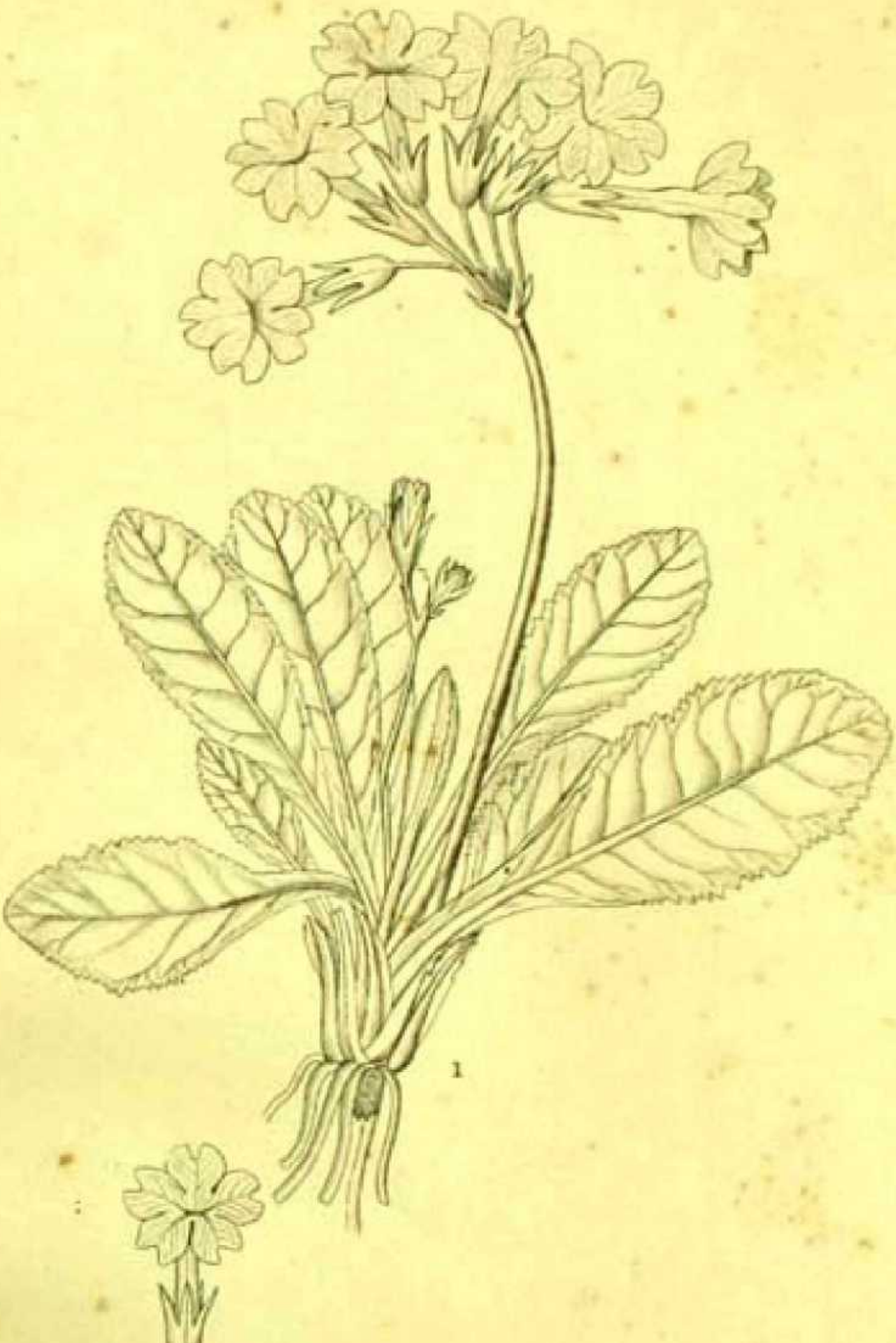

Pecher & Coward lith.
West, Newman & Co. imp.

PRIMULA JAFFREYANA, King.

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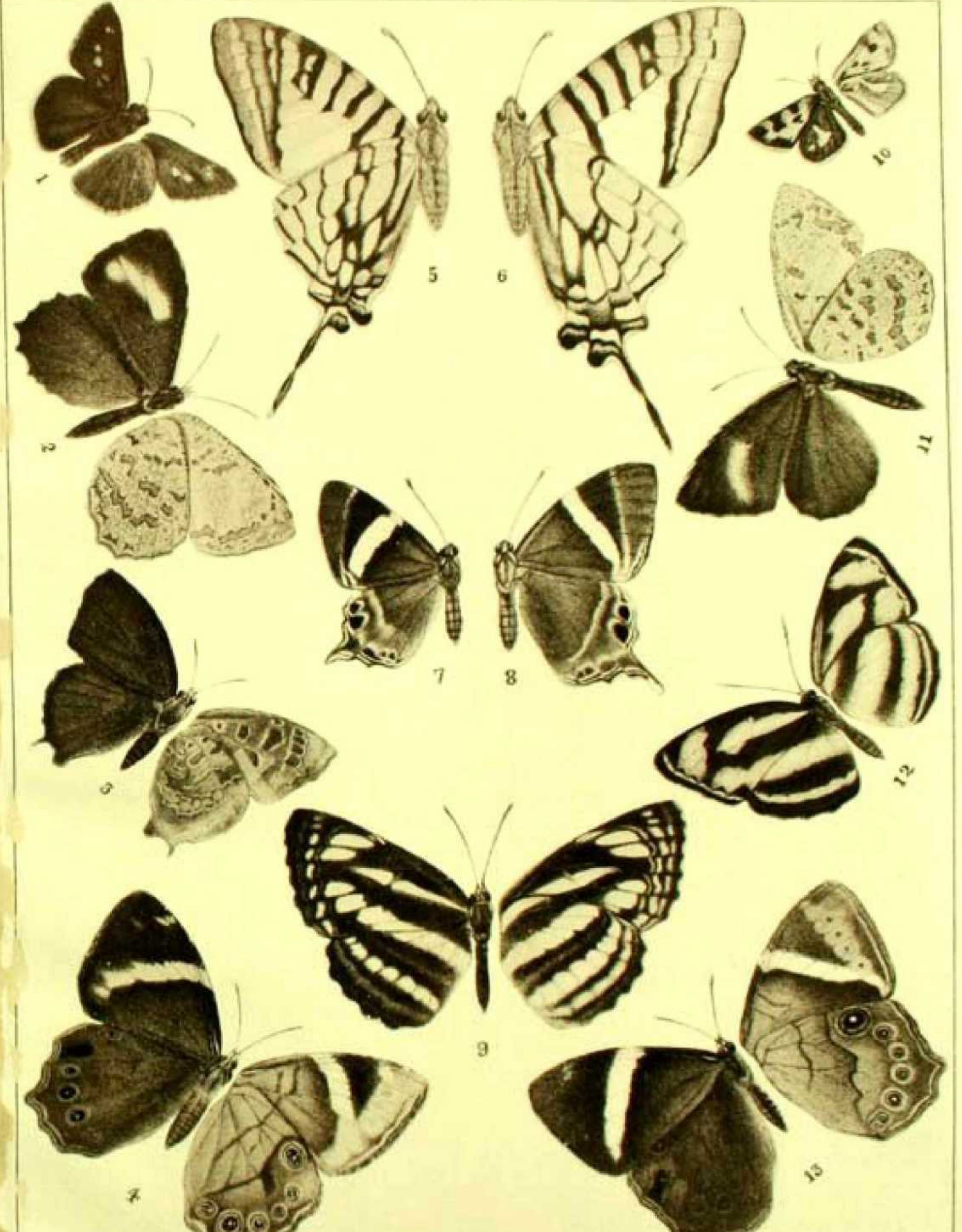

NEW INDIAN BUTTERFLIES.